LIBRARY
OF THE

JANUARY.

506(42) S
9.

THE

FIELD NATURALIST:

A REVIEW

OF

ANIMALS, PLANTS, MINERALS, THE STRUCTURE OF THE EARTH, AND APPEARANCES OF THE SKY.

EDITED

BY JAMES RENNIE, M.A., A.L.S.,

PROFESSOR OF ZOOLOGY, KING'S COLLEGE, LONDON, AND AUTHOR OF INSECT ARCHITECTURE, ALPHABET OF BOTANY, &c. &c.

LONDON:

ORR & SMITH, 14, PATERNOSTER ROW;

W. & R. CHAMBERS, EDINBURGH; AND W. CURRY, JUN. & CO., DUBLIN.

1834.

[PRICE ONE SHILLING AND SIXPENCE.]

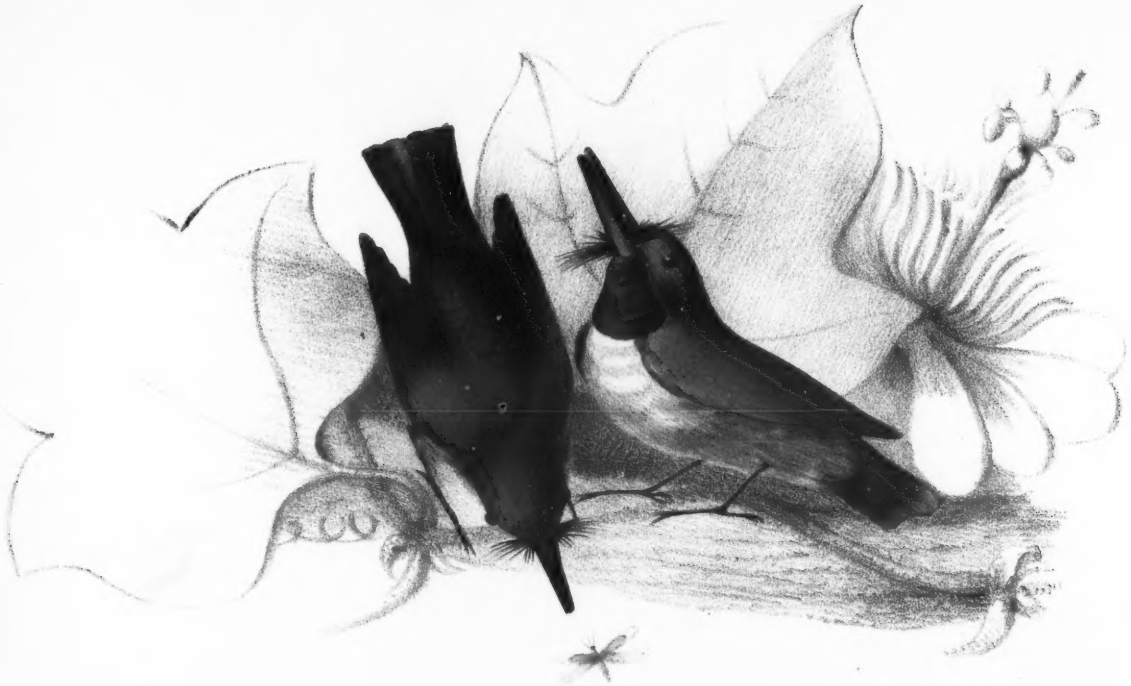
15 67942 Aug. 17

CONTENTS.

	PAGE.
The Green Tody (*Todus viridis*), with a coloured Figure. By R. H. L., with additions by the Editor	1
On the Expansion and Contraction of Solids by Heat. By R. T. C.	3
Experiments on the Heat of Living Plants. By Professor Goeppert, of Vienna	6
Advantages of Natural History	9
Notes. By Observator	11
On the Agenda of N. N. By T. C.	12
Mr. Birt's Arrangement of Clouds	14
Tabular View of the Nomenclature of Nephology	16
Notes from Yorkshire. By J. H. Anderson, Esq.	17
Bedell's Tree. By Ruricola	21
On the Organs of Hearing in Insects. By Professor G. R. Treviranus, of Bremen	23
Notes. By T. C.	25
The Editor's Medical Botany	27
The Field Diary of Solitarius	40
On procuring Specimens of the smaller British Land Birds for a Museum, with Observations on the Habits of various Species. By Edward Blyth	44
Chapter of Varieties— Anecdote of a Slow Worm—The Woodchat—Dragon Flies	54

Tyro, Tulse Hill, is informed that the fullest work on British Birds is Montagu's Ornithological Dictionary; for General Remarks, Architecture, Habits, and Faculties of Birds, the Library of Entertaining Knowledge. The Editor hopes to have his "Alphabet of Birds" ready about April.

Communications from E. G. Ballard, James Fennel, Alpha, Tyro, T. M. G., Omega, R. T. C., S. W., have been received. Correspondents are requested to send early in the month.



THE GREEN TODY. (Todus viridis.)

THE

FIELD NATURALIST.

THE GREEN TODY (*Todus viridis*), WITH A COLOURED FIGURE.

BY R. H. L., WITH ADDITIONS BY THE EDITOR.

I HEREWITH forward you a drawing of the *Barrancali*, or Perroquet de Terre. The birds are represented of the natural size. M. Drouin de Bercy's description will be found to be exact and full, brief as it is. He has not, however, noticed the curious conjointed toes of the feet. It is essentially insectivorous; and as to its voice, the only sound I have ever heard it utter was a sort of angry pur, or murmur, when approached, a sound invariably an intimation of its rising on the wing. Its flight is always extremely short, scarcely ever further than from bush to bush. It may be easily knocked down, and I used to procure them by striking them down with a switch, having a few leaves not stript off at the end of it, to break the blow and well cover the bird.

37, *Gloucester Street, Bloomsbury, Nov.* 2, 1833.

As I do not know where to procure M. Drouin de Bercy's description, I beg to subjoin the following notices from the sources within my reach, beginning with the synonymes.

Green Sparrow or Humming Bird, *Edwards*, Glean. pl. 121. Green Tody, *Lath.* Gen. Hist. iv. 81; *Shaw*, Gen. Zool. viii. 129, pl. 16; *Wood*, Buffon, xviii. 239, pl. 172, (wretched); *Griffiths*, Cuvier, vii. 414. Todus viridis, *Gmelin*, Linn. i., 442; *Brisson*, iv. 528, tab. 41, fig. 2; *Borowsky*, Nat. ii. 141, tab. 19; *Pallas*, Spec. vi. 16; *Vieillot*, Amer. i. 87, pl. 56. Sylvia gula Phœnicea, *Klein*, 70, 16. Rubecula viridis elegantissimus, *Raii*, 187, 40; *Sloan*, Jam. ii. 306, tab. 363, 1; *Brown*, Jam. 476. Todier de l'Amerique, *Buffon*, Planches énlum. 585, 1, 2; *Temminck*, Man. 2nd edit. p. lxv.; *Desmarests*, Tanag. pl. 1; *Lesson*, Man. 1. *Drapiez*, Dict. Class. in voce. Todo verde, *Ranzani*, Elementi, iii. iv. 227. Der grune Plattschnabel, *Schmidt*, Vog. 69, 56.

Baron Cuvier's description is, "Fine green above; yellowish white beneath; throat with a red spot; four inches in length." "It will be always easy," says M. Montbeillard, "to distinguish the bird; for, besides the peculiarity in the bill, the upper side of the body in the male is of a dilute blue, and the under side rose-coloured; and, in the female, the back is of a fine green, and the rest of the plumage similar to that of the male. In both, the bill is reddish, but lighter below and browner above; the legs are grey, and the claws long and hooked. The bird feeds on insects and small worms, and inhabits wet and sequestered spots." Professor Ranzani mentions that the bill changes its colour after death, being "in the living bird, reddish above and brown yellow beneath; in the dead bird, the upper mandible brownish red, the tip clear reddish brown, the under mandible yellowish." It is probable, I think, that a similar change of colour may occur in the legs and feet. This accounts for Latham describing the "upper mandible brown, the lower orange;" but he seems only to have seen a female, which he mistook for a male.

The accounts given of the nest and eggs differ considerably. M. Chervain says, "that, in the pairing season, the male has a feeble though pleasant warble. The female builds her nest on the dry ground, and preferably on the friable mould, and for that reason these birds choose the ravines and water gullies. They often nestle also in the low galleries of houses, yet always on the ground. They make an excavation with their bill and claws, give it a round form, hollow out the bottom, and place pliant straws, dry moss, cotton, and feathers, which they artfully arrange. They lay four or five eggs, which are *grey and spotted with deep yellow*." M. Ranzani follows this account.

M. Vieillot again says it makes its nest of dry grass and moss, feathers, cotton, and other soft materials within, laying three or four *blue* eggs, the size of those of the redstart.

M. Drapiez says, "it establishes its nest in the ground, or rather in the crumbly earth on the edges of ravines, at such a height as may not endanger it from inundations, and that the cradle of the young family may be perfectly sheltered from the rain. This nest, or rather subterranean lodging, exhibits a rounded apartment, to which the approach is by a winding gallery. The lining of the nest consists of bits of straw covered with down, upon which the female lays four or five eggs of a *grey colour spotted with brownish*."

Prince Maximilian, of Neuwied, says the bird is not uncommon in Brazil, where it makes a conical bag-shaped nest, composed of wool,

closed at the top, with a narrow entrance; and builds in the neighbourhood of a species of wasp, for the purpose, it is believed, of rescuing it from the attacks of its enemies. The latter is of course absurd, and the nest described by the prince must surely belong to some other species.

M. Salerne, as well as Vieillot, mentions its singular habit of sitting crouched with its head drawn in betwixt the shoulders, so that the hind head almost touches the back, giving it a very awkward appearance; and then it is so stupid as almost to permit itself to be taken by hand.

With respect to its voice, we have seen that M. Chervain says, "the male has a feeble though pleasant warble;" and M. Drapiez says it has "a small song, rather agreeable, to which the female responds by a small call-note." M. Vieillot says, "they make a frequent melancholy noise." Ranzani says the female scolds (*gridare*) when the nest is approached.

"They are difficult to tame," says M. Montbeillard; "yet we may succeed if they are young, and fed by their parents in a cage till they can feed themselves. They have a strong attachment to their brood, and will not leave them as long as they hear them cry." This, however, is not peculiar to the green tody, but common to all birds.

M. Temminck has made a genus of this single species; and Baron Cuvier, M. Drapiez, and Signor Ranzani follow him. The peculiar formation of the toes alluded to by R. H. L., is well known to all systematic writers, and brings the bird under the division SYNDACTYLI.

EDITOR.

ON THE EXPANSION AND CONTRACTION OF SOLIDS BY HEAT.

BY R. T. C.

THE principles of heat being associated with the pursuits of the naturalist, the following, it is presumed, will not be misplaced by occupying a space in the columns of the Field Naturalist.

The particles of matter composing a solid body are kept at certain distances from each other by two forces, viz. cohesion and repulsion. If heat be applied to a solid, the attraction of cohesion is weakened,

repulsion is increased, and the substance acted upon is larger in bulk. If heat be abstracted from a solid, repulsion is weakened, the cohesive force is augmented, and the solid occupies diminished space. If a solid be heated equally in all its parts, it will maintain its figure; expansion will cause all its parts to increase in the same proportion, which is easily proved by taking a brass plate pierced with a hole, into which a bar exactly fits, the bar and plate being of the same temperature. Let the bar be heated to a considerable temperature, and it will be found that the hole in the brass plate will be too small to admit the bar. Reduce the bar to the temperature of the plate, and it will resume its original dimensions.

Of solids, metals are the most expansive; and of metals, lead. The effect of the expansion of metals has been regulated with respect to the construction of clocks; and the labours of experimental men have brought these instruments "to such perfection," says Sir John Herchel, "that an irregularity in the *rate* of going, to the extent of a a single second in twenty-four hours in two consecutive days, is not tolerated in one of good character; so that any interval of time less than twenty-four hours may be certainly ascertained within a few tenths of a second, by their use." The effect of raising the temperature of a pendulum clock would be to cause the pendulum to expand, which would remove the centre of oscillation further from the point of suspension, and cause its rate of vibration to be slower; diminution of temperature would be attended with a contrary effect. To remedy these defects, Graham, in the year 1715, made several experiments, which led to the construction of the mercurial pendulum. The point of suspension in this pendulum is always kept at the same distance from the bob, or centre of oscillation, by means of mercury, which ascends when exposed to increased temperature, and descends when heat is abstracted, thereby regulating the rate of vibration. In 1726, Harrison, originally a carpenter, at Barton in Lincolnshire, invented a pendulum formed of brass and steel rods. The object in this invention is attained by the greater expansion of the brass rods, which force the bob, or mass, upwards, as much as the steel rods are elongated, or forced downwards. In making patterns for cast-iron moulds, the workman allows one-eighth of an inch per foot for the contraction of the metal. If a goblet glass, at about the temperature of 50°, be filled half full of hot water, probably the glass will crack, because its surface in contact with the water will rapidly expand, and be forced away from that part not heated, and beyond the reach of the water; but if

the glass be heated gradually to the temperature of the water, danger need not be apprehended, because the vessel undergoes a uniform and gradual increase of bulk.

There are exceptions to the law of uniform expansion by heat with respect to solids. Lavoisier and Laplace, by experiment, showed that tempered steel, from the temperature of 32° to 150°, decreased in expansibility; but they accounted for this exception to the law, by the change in the temperature of tempered steel during the process of annealing, which changed its nature, and converted it into untempered steel. An apparent exception to this law of expansion by heat, manifests itself with respect to aluminous clay. When this substance is exposed to intense heat, it contracts, by reason of the extrication of moisture; it does not belong to the class of ordinary expansion by heat any more than the case of tempered steel, as stated above. These substances, after the change of temperature which they suffer, cease to consist of the constituent parts which originally composed their mass. Exceptions, also, are observed in animal and vegetable matter; they are accounted for in the same manner as the case of heated clay, viz. by their aqueous parts being dismissed in vapour, causing their volume to contract. Hence it appears that the abstraction of heat from a solid body is equivalent to compression or condensation; the volume of the substance acted upon being lessened without diminishing its particles of matter, proving that solid bodies are porous.

The porosity of gold was proved by an experiment instituted at the *Accademia del Cimento*, in Florence. A hollow ball of gold was filled with water, and the aperture closed. The globe was submitted to pressure until its figure was changed, when the water oozed through the pores of the metal, and covered the surface of the globe, having the appearance of dew. The pores of a solid body are occupied by air, provided that the solid is exposed to the atmosphere, and that its pores are larger than the particles of air. This is the case with limestone, charcoal, dried fruit, and many kinds of wood, and particularly a siliceous substance called *hydrophane;* the proof of which is manifest by plunging each substance under the surface of water, when the air occupying their pores will escape at the surface in bubbles.

The diminution of density produced in solids by the application of heat, and the increase of density by the abstraction of heat, must be evident to all persons who do not look upon objects around them with a passive and indifferent gaze. Expansion and contraction of solids force themselves into notice during our daily vocations, either to frus-

trate our views, or to forward our wishes. A clearer view of these phenomena enables us to trace the operations of general causes, affording to the contemplative man inexhaustible springs of knowledge. Thus, it seems that the solid bodies by which we are surrounded, although to us they appear to possess a leaden dulness, a sluggish and inert appearance, are never at rest. Constant motion influences their exterior dimensions, and their interior and hidden particles are constantly approaching and receding from each other.

Shouldham, Nov. 1833.

EXPERIMENTS ON THE HEAT OF LIVING PLANTS.

BY PROFESSOR GOEPPERT, OF VIENNA.*

After making some remarks upon the development of heat in plants, and indicating the authors who have maintained conflicting opinions thereupon, M. Goeppert states, that he has been led, by recent experiments, to conclude that plants, as living beings, can generate heat. That, however, which is disengaged during the nutrition and respiration of the insulated plant, cannot be brought under observation, as it is continually carried off by the surrounding air.

A. Experiments made on seeds while germinating. No author has yet made the observation, that caloric is emitted by plants when germinating; they, however, generate a considerable quantity. Modern authors had usually ranked germination as belonging to the phenomena of chemistry or fermentation; they know only that wheat generated at that time a greater degree of heat, but without having made any distinct observations on the subject. After having soaked some grains in water until they had absorbed the quantity necessary to germination, the author withdrew them, and placed them in heaps. In proportion as the quantity of corn was greater and more surrounded by bodies that are non-conductors of heat to prevent deperdition, the higher the temperature became. M. Goeppert usually made his observations in wooden vessels, which were deep, and surrounded with tow, to the thickness of two or three inches. The length of time necessary for the development of the shoots and radicles depends more or less on

* Ueber Wärme-Entwicklung in der lebenden Pflanze: pp. 32. 8vo. Gerald, Wien, 1832.

the temperature of the air. Immediately after this phenomenon, mouldiness is visible; the farinaceous grains become acid by fermentation, and then all power of germination is at an end. The seeds which contain azote, such as kidney beans, requiring four or five days to germinate, are not proper for experiments; because, after so long a space of time, a part has already become putrid. The same observation may be made of mucilaginous grains: consequently, the grains that may be employed with most success are those which germinate very quickly. To prevent a premature budding of the mouldiness, care should be taken to choose a time when the temperature is not very high. The heat of grains when germinating rises rapidly, and stops at a moderate height: it usually rises some degrees higher, when decay, or acidity from fermentation, appears. The first representation that the author gives of these experiments indicates the development of heat in wheat, oats, and maize, during thirteen days successively. At a moderate temperature of 11-12°, wheat arose after the third day to 20°; at which it remained during three days. Then appeared symptoms of decay and acidity, which successively caused the thermometer to rise to 28°. The oats exhibited nearly the same results. The maize rose about the time indicating 16°. On the thirteenth day only signs of decomposition appeared. The results obtained from peas and hemp differed but little from those produced by monocotyledonous plants. The grains hitherto submitted to experiments possessing a great deal of fecula, the author sought to discover the phenomena presented by the germination of those plants which do not possess any; for this purpose he made experiments on the following plants: *Triofolium repens, Brassica napus, Spergula arvensis,* and *Carum Carui;* they produced the same results; and therefore prove that the quantity of fermenting substances has no influence whatever on the quantity of caloric disengaged, and that we cannot explain the development of heat by a simple process. Experiments made on considerable quantities of wheat leave not the least doubt that the sugar developed during germination may be only the result of an organic operation, and that the caloric disengaged owes its existence to the vital power of the vegetable only, and not to a process of combustion, an opinion adopted in preference by chemists to explain the increase of the temperature.

B. Experiments made with bulbs and tubercles.—Those which were made on potatoes, radishes, and other large tubercles, produced no results; it being impossible to make observations on them. The author consequently proceeded by the method employed with seeds.

He took nine ounces of the *bulbulli* which grow on the umbels of the *Allium sativum*, at the moment when the leafits were near developing. He examined them during ten days, repeating his observations three times a day: the maximum of caloric observed was from 2 to 3°. Nearly the same results were obtained by $2\frac{1}{2}$ pounds of bulbulli of the *Lilium tigrinum*, and by potatoes the size of a hazel nut.

C. Experiments made on plants already developed, and in full vegetation.—That which especially prevents the discovery by these experiments of results, analogous to those furnished by germination, is the considerable exhalation of vegetables, by which certain plants lose in one day nearly half the weight of their leaves. After having taken the precautions necessary for making decisive observations, the author was convinced that the young oat plants were of a higher temperature by two or three degrees than the surrounding air. The maize and the *Cyperus esculentus* showed an increase only of from 1 to $1\frac{1}{2}$°. Similar results were obtained from the following plants:—*Hyoscyamus niger*, *Sedum acre*, *Pinus abies*, *Eupatorium cannabinum*, *Solidago arguta*, and the fruits of the *Mespilus cotoneaster*. The *Spergula arvensis* had exhibited during germination a higher temperature than the other plants; and plants in full vigour gave the same results. In a few hours the thermometer rose from 16° to 26°: this result may partly proceed from the fact that plants contribute to the restoration of each other, and by that means prevent the escape of caloric. Peas, observed at different stages of growth, constantly presented a higher temperature.

At the conclusion of his memoir, M. Goeppert again speaks of caloric being developed by the *Aroïdeæ*. The *Arum dracunculus* exhibits a considerable increase of caloric; the anthers especially evince its escape: when cut, they still preserve during twenty-four hours a higher temperature than the atmosphere. The highest degree of heat observed in the flowers of this plant is from 27° to a temperature of 13°. The observations made to discover the development of caloric in the flowers of the *Cactus* and the *Malvas* have hitherto produced no results: the author, however, does not despair of obtaining them in the course of time.

[Our younger readers may be told that the evolution of heat both in animals and plants, is, so far as we know, the result of the combination of various gases, the heat being, as it is conceived, forced out from between their particles, when these particles are pressed closer together.—Editor.]

ADVANTAGES OF NATURAL HISTORY.

I HAVE often been asked by persons who know that I am pursuing the study of Natural History, but who are unacquainted with that study, of what utility is the pursuit of that and similar sciences? In answer to these inquiries, I think I cannot do better than to transmit to the pages of The Field Naturalist an attempt to give some of the most obvious benefits which arise to mankind from the real study of natural science. In so doing I shall divide these benefits into the direct and indirect: the direct are those which the science has immediately in view; the indirect are those which, although not sought for, yet very naturally become the consequences of a pursuit of the study. Before, however, proceeding to consider these two principal branches, it will be necessary for us to inquire what are the objects proposed by the study of natural history.

Natural history is not at present, as it has been, a mere science of words and names. Amongst all the improvements which modern science has gained to herself in this very scientific age,—amongst all the varied aspects which modern literature presents to our wondering gaze, natural history stands pre-eminent. The vivifying influence of a few illustrious men, in a few short years, has raised it from the depths of oblivion to the highest elevation which science can offer to her numerous and aspiring votaries. I do not, I cannot acquiesce in the opinion, although it has been, and still is, supported by some of our most eminent scientific men, that science is declining amongst us, and that Britain is rapidly losing, if it has not already lost, its pre-eminence. As a scientific country, I confess, that this lamentation over the fallen fortunes of our land appears to me utterly unfounded. How can it be said that science is declining amongst us, whilst such ardour in the pursuit of all its diversified branches cannot fail to be perceived amongst almost every class of society; and whilst such a list of splendid names grace the annals of modern British science, which cannot fail to adorn the fair page of history? "Can it be necessary," exclaims the learned author of that interesting discourse on the objects of science, which is prefixed to the scientific publications of the Society for the Diffusion of Useful Knowledge—"can it be necessary to declaim on the superiority of a people amongst whom intellectual pleasures, however trifling, are preferred to mere animal gratifications?" The time is now gone by, when a defence of any department of natural

science is necessary. The pleasures of science now go hand in hand with the solid benefits derived from it. They tend, unlike other gratifications, not only to make our minds more agreeable, but better; and a rational being is bound, by every motive of interest and duty, to direct his mind towards pursuits which are found to be the sure path of virtue as well as happiness."

To return, however, to natural history: In following up this most interesting study, it is not our object merely to make ourselves acquainted with a long catalogue of technical terms and scientific appellations. Although some knowledge of this is necessary for a student of nature, yet, were this all, nature could not have gained as many attentive observers of her charms as she has done; for were it so, who, to use the words of Dr. Johnson, would take all that care, and endure all those hardships, which are attendant on a due pursuit of the science of natural history? Who would listen to hear the "owl shriek at midnight, and the cricket cry in the noonday heat?" Who would, like the indefatigable Wilson, wander amongst the dark and impenetrable woods of the vast continent of America; or, like Le Vaillant, endure, with imperturbable magnanimity, the scorching influence of an African sun? This, then, is not the study we advocate; this is not natural history. The objects proposed by the study of modern natural science are of a far higher tendency. In order to be competently acquainted with this so different science, we must search out nature in all her varied shapes, and in all the beauteous forms which she adopts to dazzle the eye and entrance the mind of the enchanted beholder. We study nature, not principally to become acquainted with the number of genera contained in a certain class, or with the number of species contained in a single genus—not in order to arrange those classes in systems, either quinary, or any other singular compound; but in order to adduce facts from which certain principles may be laid down in order to become acquainted with the habits and peculiarities of those animals in a state of nature, which we cannot do in a state of domestication or confinement. These, then, are the objects proposed by the study of natural history. I would now proceed to consider the benefits derived from those objects, but I am fearful that I have already proceeded too far; and that, by the intrinsic interest of my subject, I have been led into considerations which might become matter of discussion for talents far higher than any I can boast of. I hope, however, in a future letter, to be able to follow up my subject; meanwhile I must beg leave to subscribe myself,

OBSERVATOR.

NOTES

BY OBSERVATOR.

A most singular instance of instinct—may I call it?—has recently, come under my observation, as happening in this town. A cuckoo (*Cuculus canorus*) was found, just feathered, in the nest of a hedge-sparrow (*Accentor modularis*). It was immediately taken from thence and placed in a cage, containing a hen canary (*Fringilla canaria*). The birds agreed perfectly well; but, what is most singular, when the proper food for the cuckoo (small caterpillars or larvæ of the *Lepidoptera*) was placed in the cage, the canary fed its young charge with that, although she herself still kept to the hemp seed, &c., which she had always been accustomed to. Can this be referred to mere instinct? Is there not in this an exhibition of some higher principle?

An hoopoe (*Upupa Europæus*) was shot a short time since in or near a village adjoining this town. I had not an opportunity of observing it myself, or I should have transmitted to you an account of its plumage, and other peculiarities which it may have had. The humming bird sphinx (*Sphinx stellatarum*) has been very plentiful hereabout this summer. I have seen and captured several very perfect specimens. In going over lately, for the second time, "Knapp's Journal of a Naturalist," I met with a passage which I do not remember to have particularly remarked before, descriptive of the song or note of the missel thrush (*Turdus viscivorus*), or holm screech, as it is here provincially termed. The passage I proceed to transcribe: "The approach of a sleety snow-storm, following a deceitful gleam in spring, is always announced to us by the *loud untuneful* voice of the missel thrush, as it takes its stand on some tall tree, like an enchanter calling up the gale. It seems to have *no song, no voice*, but this harsh predictive note, and that in a great measure ceases with the storms of spring." Most other ornithological writers, however, whom I have consulted on this subject, give a contrary statement. In fact, none that I recollect at present mention the note of this thrush as being loud (at least unpleasantly so) or untuneful. I have been led to pay particular attention to this, and confess that I must disagree with Knapp, and hold with the authors who describe this bird's song as not perhaps soft, but at least melodious*.

Plymouth, October, 1833.

---

* See Habits of Birds, p. 291.

ON THE AGENDA OF N. N.

BY T. C.

In answer to N. N., I beg leave to offer you one or two remarks, though I am perfectly of opinion that it will be impossible to satisfy him on some of the points suggested in his communication. It is well that all are not of his opinion; that "little *information* is acquired by being told how a cock robin or a cock sparrow builds its nest, whether with leaves, or moss, or feathers, or flue, or by any information of that kind;" in other words, that no knowledge is useful but that which tends to some pecuniary profit; such as rearing game or poultry, or "adding to the riches of our farm-yards, parks, woods, or fields."

For my own part, I think no study can be more instructive, more useful, or more amusing, than the study of NATURE, whether with regard to "new kinds of game," or only relating to a "cock robin," or a "cock sparrow."

Notwithstanding the delicious food thus afforded, it is with regret that I see the quantities of game brought to the London markets, and I should fear that time alone is wanting to exterminate from this country the game we already possess.

The bustard, the largest British bird, is now rarely to be found, and it is a melancholy prospect to the naturalist to see so fine a species gradually exterminated by the encroaching hand of cultivation. If taken young, the bustard will live in confinement, and might, with care, be possibly made to breed. I am informed by an eye-witness, that one, kept by a gentleman in Norfolk, became so tame that it was quite troublesome, and would not only help itself to whatever came in its way, but would run after its visiters, pecking them, and without showing the slightest degree of fear. This bird was fed upon bread and other fragments, and was also fond of cabbage-leaves and other vegetables. The Argus pheasant has, I believe, never been kept in confinement; but the different varieties of the curassow are equally hardy with the turkey, peacock, &c. In South America, we are informed, they have long been reclaimed; and a friend of mine from Honduras, tells me that there they are kept as common poultry, that is to say, the common crested sort (*Crax alector*, LINN.); and as we know they will live in the English climate, there can be no reason for their not becoming as common and useful in this country as the common fowl, turkey, &c. &c. Gold and silver pheasants have been

"hatched and brought up in large numbers," and might be "turned out in our common woods," though I should imagine they would not agree very well with the common species; but M. Temminck says they have been kept in Germany, in an open pheasantry, in company with the common sort; the silver pheasant is as hardy as the common one, and it is possible that the experiment might succeed in this country. The principal difficulty in all these experiments is the great expense incurred in making them.

With regard to the game which we now possess, such as red and black grouse, &c., while such numbers are daily destroyed, it is vain to endeavour to *increase* the number of the survivors.

It is impossible to force a bird to breed in a country, the climate and food of which are different from those to which it has been accustomed; but, as the pheasant has been naturalised, it is possible that the black partridge might also. The wood pigeon has been *tamed*, though it will not breed in confinement, and *how* to make it is certainly more than I can say. Perseverance and patience may possibly achieve this end. To cover our ponds with summer ducks, and teal, and *some* geese of "beautiful and new kinds," I imagine would not be difficult, if it were once attempted; and our parks are already stocked with deer and stags, though not with elks, antelopes of *every* shape and form, kangaroos, &c. But the emeu is very easily domesticated, and has frequently bred in confinement, both at the Zoological Gardens and in the collection of his late Majesty, so that it might, were it worth the expense, be readily made to breed in our parks, &c.

With regard to "how to stock our woods with Virginian nightingales, and our orchards and shrubberies with the common nightingale, in those parts of England where they are now never heard, and also to naturalise Canary birds, Baltimore orioles," &c. &c., I must confess my utter inability to answer this question; and until England shall possess the climate of Virginia, and be equally wooded and equally temperate in all its parts; till birds shall change their natures, and those inhabiting the tropics shall fly to the poles; till palms shall spring up in the woods of Great Britain; and, in a word, till all nature shall be altered and her laws entirely changed—I must leave this question to be answered by more learned naturalists than myself, and hope that the little I have been able to say in answer to his other queries may not prove entirely void of interest to N. N.

[In our next we will give an instance of the successful naturalization of the Lama of Peru.—EDITOR.]

MR. BIRT'S ARRANGEMENT OF CLOUDS.

During a series of meteorological observations, in which I have been engaged for some years past, I found it important to register the appearance of the clouds, and for this purpose directed considerable attention to them. When I first registered them, I adopted the nomenclature of Howard, but soon found it insufficient to convey to my mind, after a lapse of time, a clear and distinct idea of the clouds I had seen at the time of registering. I was, therefore, under the necessity of sketching out a nomenclature for my private use; when, after a course of daily observations for upwards of twelve months, I found so many distinct varieties and modifications, not mentioned by Howard, that I was induced to collect and classify them for the benefit of meteorologists, generally; and with this view I have laid them before the Eclectic Society of London.

The clouds, I conceive, may be divided into three distinct divisions or classes, according to their structure, as all those that I have hitherto observed may be referred to one of them. There are clouds which possess a structure similar to those known by the familiar name of fogs or mists, and these are observed in the upper and lower regions of the atmosphere: for this class I conceive the most appropriate name to be *Nebula;* and I have noticed five distinct varieties and modifications, two in the upper, and three in the lower regions. The terms I have applied to those observed in the upper region, founded on their appearance, are *Nebula expansus*, and *N. striatus;* or an expanded nebulosity, and a streaked nebulosity. The term applied to those observed in the lower region is *N. stratus*, as expressing that it is spread over a portion of the earth's surface.

The next class is more extensive, and includes all those clouds that possess a fibrous structure; the term *Fibrus*, employed generically, will, I conceive, sufficiently point out the structure of the cloud to which it is applied. The varieties which compose this class I have arranged according to their appearance and relative altitude, commencing with the long, thread-like fibres, which, on close inspection, I have found on some occasions to result from a resolution of the nebulosity of *N. striatus;* this variety I have termed *Fibrus filiformis*. These clouds sometimes unite and form broad bands, stretching from one part of the horizon to another: to express this appearance, I have suggested the term *F. striatus*. On some occasions these bands unite, and form

* The paper, of which the present article is an outline, was read before the Eclectic Society of London, on November 26, 1833.

a sheet of cloud extended over the heavens: to point out this spreading or extending of the cloud, I have employed the term *F. stratus*; it embraces three modifications, which I have distinguished by the Greek letters. Another variety of this class consists of short thin lines or fibres: these, I conceive, may be sufficiently pointed out by the term *F. linealis*. The next variety may be described as very beautiful feather-like clouds, sometimes of considerable size; to these I have applied the term *F. plumatus*. In addition to these, we have a curled variety, commonly known by the name of mares' tails; these, I conceive, may be appropriately designated *F. crispatus*. The last variety of this class consists of clouds that appear as bundles of fibres: to point out these I have employed the term *F. fasciformis*; the variety includes three modifications, expressive of the size of the clouds and their influence on the weather.

The third division embraces all those clouds that differ from the preceding classes, in their structure being hairy: the appearance they present to the eye is that of hairs or fibres, having a very irregular or confused arrangement. As this structure can be clearly traced through the whole class, perhaps the generic term *Crinis* may be appropriately employed. The clouds composing it occupy the middle region of the atmosphere, while those of the class *Fibrus* are generally observed in the upper. The appearance of the clouds of *Crinis* differ according to their elevation; and I have noticed five distinct series of them, which I have designated by the terms *primus, secundus, tertius, quartus,* and *quintus,* commencing with those that occupy the lowest station. These series generally include four varieties, which I have termed *tenuis, compactus, cumulatus,* and *serratus*; the first expresses that the cloud exists in its earliest stage, and is so thin that its structure is readily perceptible; the second points out that the cloud has obtained an accession of vapour, which gives it a compact appearance, and obscures its structure in the middle: the third that the cloud has put on a heaped appearance; and the fourth, that it has become so accumulated as to present a fine notched or serrated edge: this variety is very conspicuous in showery weather. In the upper series the term *sphæricus* is substituted for that of *compactus,* as the variety then assumes a more globular figure. In the series *secundus,* I have noticed an additional variety, which, on account of its rough and shaggy appearance, I have termed *hirtus*. The *tenuis* of the fifth series approximates very closely to the class *Fibrus,* especially the variety *plumatus*; to point out this connexion, I have suggested the term *fibratus* instead of *tenuis*.

On some occasions a variety may become so prevalent as to overspread a great portion or the whole of the atmosphere: to point this out, I conceive the term *stratus* may be applied, as *C.* 1. *Compactus stratus.* I have noticed nine varieties that in this manner form *strata.* In the following table all the varieties and modifications hitherto noticed are arranged in the manner above mentioned, and for the sake of reference I have prefixed a letter to each variety and modification, the *Nebula* being distinguished by the small Roman characters; the *Crinis* by the small italic letters, the *Fibrus* by the Roman capitals, and the *Stratus* by the italic capitals. In order that this branch of meteorology may be distinguished from the others, I have suggested that the term *Nephology* be used, which is derived from the word *nephos*, a cloud, and *logos*, a discourse.

TABULAR VIEW OF THE NOMENCLATURE OF NEPHOLOGY.

NEBULA.

a N. Expansus
b .. Striatus
f ... Stratus
g ... ... β
h ... ... γ

FIBRUS.

A F. Filiformis
B ... ... β
C ... Striatus
D ... Stratus
E ... ... β
F ... ... γ
G ... Linealis
H ... Plumatus
I ... Crispatus
K ... Fasciformis
L ... ... β
M ... ... γ

CRINIS.

Primus.

a C. Tenuis
b ... Compactus
c ... ... β
d ... ... γ
e ... Cumulatus
f ... ... β
g ... Serratus
h ... ... β

Secundus.

i C. Tenuis
k C. Sphæricus
l ... ... β
m ... Cumulatus
n ... Serratus
o ... Tenuis β
p ... Sphæricus γ
q ... ... δ
r ... Hirtus

Tertius.

s C. Tenuis
t ... ... β
v ... Sphæricus
w ... ... β

Quartus.

x C. Tenuis
y ... Sphæricus

Quintus.

z C. Fibratus
a′ ... β
b′ ... Sphæricus β
c′ ... ... STRATUS. γ
A F. Fasciformis β
B ... ... γ
C C. 1 Compactus
D ... ... γ
E ... Cumulatus
F ... Serratus
G ... 2 Sphæricus
H ... 3 ...
I ... 4 ...

NOTES FROM YORKSHIRE.

BY J. H. ANDERSON, ESQ.

As you give encouragement to lovers of natural history in the country to address you and make known their observations, and in return ask information of you, I therefore without further introduction commence my irregular epistle.

The memorable storm of the 31st of August last made terrible havoc among the feathered race in this neighbourhood; whole covies of young partridges were found starved to death in the fields, and a great many larks and other small birds, and several rooks and jackdaws, also shared the same fate. A neighbour found above twenty sparrows lying dead under some poplar trees in his yard; so, computing from the number of dead birds found in this neighbourhood, the quantity that perished must have been very great throughout the country. As I was ranging the fields the first week in September, I fell in with twelve or thirteen fieldfares (*Turdus pilaris*), which I am inclined to think had been bred in the neighbourhood; the locality, I think too, favours the supposition. Their daily haunt is a plantation of ash, oak, and elm trees, through which a considerable stream runs; and in the vicinity there is a good deal of marsh or boggy land. I inquired of some labourers who were well acquainted with the place, if they had noticed them before, and they thought they were natives. However, to be more certain, I intend keeping a strict look-out after them another year.

I also fell in with a young heron (*Ardea cinerea*) at the same place, and had it brought to me a day or two afterwards. I saw a family of long-tailed tits (*Parus caudatus*), and was much amused by their manœuvres as they flitted from one willow to another, twittering incessantly.

We have the gold-crested wren (*Regulus cristatus*) in the larch plantations round about here, and in hard weather they may be seen in our gardens and paddocks in plenty.

The kingfisher (*Alcedo Ispeda*) is a summer resident with us, and some years back I saw a nest of six or seven, but am sorry to add they all met an untimely fate from myself and schoolfellows. Being ignorant of their history, we thought they were natives of the watery element; and being anxious that they should have plenty of it, we put them into water so often, that none of them survived many days. I have watched a kingfisher for more than an hour together, sitting on

the branch of a willow overhanging a corner of the fine open sheet of clear water we have in this village, and it apparently took no notice of the passengers on the road within forty or fifty yards of it. I believe the pretty harmless creature was marked, and shot by a mischievous school boy in the end.

The water hen (*Galinula chloropus*) graces our water course all the year round. The bittern (*Ardea stellaris*) has been seen and heard here occasionally, but is rare.

Wild ducks (*Anas Boschas*) are plentiful here throughout the autumn and winter. Wild geese (*Anser ferus*) visit our hills and large open fields by thousands every autumn, and it is very pleasant to observe their orderly martial flight as they come and go every morning and evening. The whizzing sound a large flock of them makes, as they fly over one's head, puts one in mind of the music of the spheres:—

> "Unheard, but yet remembered still,
> Through gleams of hope and clouds of ill."

O! did the town-bred youths but know the sweet pleasure that the study of natural history would afford them, they would forsake the billiard table and other idle games, and hie into the country after business hours to hold converse with Nature and Nature's God.

I am very glad, my dear Sir, that I fell in with some of your works on natural history when I did,—had I not, I might now have been spending my time in the same idle, profitless manner, that a great many other young men do who have not their time fully occupied by business. But to our subject again.

The dottrel (*Charadrius morinellus*) and the plover (*Charadrius pluvialis*) both visit our large open fields every spring and autumn;—the latter bird often in great numbers, and dire is the slaughter committed among them both by experienced and inexperienced gunners.

The curlew (*Numenius arquata*) may be found on our hills in summer time, and some few years back I had two half-grown young ones. In crossing the hills on a still summer evening after sunset, when a boy, I verily thought I had got on haunted ground when I came where there were three or four of these birds. They used to flit about and utter such shrill, plaintive whistles, that I was almost afraid of looking over my shoulder for fear of seeing the genii of the place, or the fairies "tripping on the light fantastic toe," around the dark green circles formed here and there on the hill sides. Maturer years have, however, happily stripped imagination of all such illusions, and where demons and genii were once reported to dwell, I now behold only the presence of a God.

The hen harrier (*Falco pygargus*) breeds among our furze brakes, and a few years ago, I shot the cock bird on a nest, and found six eggs under him; I have also had young ones more than once.

That beautiful bird the goldfinch (*Carduelis elegans*) may be seen in companies of from ten to twenty or forty, throughout the winter, on our sheepwalks and large open pastures where thistles abound. In July and August the starlings (*Sturnus vulgaris*) congregate together in large flocks, and may be found generally, in the day time, in our sheep pastures; they seem more partial to sheep than to any other animal; two or three may often be seen on a sheep's back.

On the 10th instant I saw a young cuckoo, apparently quite healthy; but the poor bird, I am sorry to say, has not been at all consulted in regard to its comfort and convenience, as it has all along been confined in a small canary cage, and has hardly room to spread both its wings at once.

I am sorry that ill health prevented me from getting out in the spring to inspect a few nests and eggs of the carrion crow, or lesser raven; I think it quite possible that I may find Mr. Waterton and yourself both right on that head. It is possible a crow may have more reasons than one for covering her eggs sometimes, before leaving them; a magpie's nest, built in the same neighbourhood, may cause her to do so when she is going to be absent from it for some time.

I should like to see naturalists a little more courteous and respectful in their criticisms one towards another, and not abusing one another like tinkers, as I have seen specimens in another magazine, and all about "trifles light as air."

The chapters relating to our British smaller birds in some of your magazines are exceedingly interesting, and they will, I have no doubt, be the means of awakening greater attention towards them among country naturalists.

The Zoological Dictionary was announced to be forthcoming in 1833. I have not yet heard of its publication; pray when may we expect it out *?

I should like to have some good coloured illustrations of some of our British birds, to bind up with the Field Naturalist and Montagu's Ornithological Dictionary. Can I get any at a reasonable rate for that purpose, and where? I have never seen any but Lewin's, and they are very indifferently executed †.

I was just about closing my letter, when a young friend of mine

* The publisher, Mr. Tegg, said it would be out at Christmas or in Spring.—Ed.

† I am not aware of any separate plates of British birds. Selby's are the best.—Ed.

sent me in a merlin (*Falco æsalon*) which he shot while out ranging the fields for game.

It is a very fine specimen, and perfect in every feather: dissection proves it to be a male bird, and apparently a full grown young one.

The description of the merlin given in Montagu's Ornithological Dictionary, at page 320 and 321, is beautifully accurate. Mine answers best to Mr. Foljambe's description.

Its length is ten inches and a half, and weighs four ounces and seven-eighths exactly. The tail is composed of twelve long feathers, and has six transverse bars thereon. The first two wing feathers appear as if cut with a pair of scissors, as mentioned in Montagu.

Some few months back, as another gentleman and myself were standing on the top of an elevated mound (raised for what purpose history does not say), we witnessed a most animating aërial chase between a merlin and a skylark.

I can only very faintly describe the short, but animating scene; it is as fresh in remembrance as if I saw it only yesterday.

The merlin came like an arrow upon the poor lark, which was flitting about on the wing at the time; it fled hither and thither in utter dismay, calling most piteously for mercy or assistance all the while; it exerted every muscle, and tried every shift and evasion, to shake off its deadly foe. It fled to the bushes and brakes for safety; but alas! found not even a single leaf to shelter it from its merciless pursuer. It made an attempt to reach us on the top of the mound, but was soon outstripped, and made to tack about suddenly; it repeated the attempt again and again—and again and again was frustrated. After a few minutes of such severe exertion the lark became gradually exhausted; and in making a last feeble effort to reach us, was overtaken by its swift-winged adversary, and triumphantly borne off to a distant field, there to be dissected and offered as an oblation to appease the cravings of nature.

Should these lines meet the eye of my friend on his return from abroad, the time, and place, and scene will be recalled to his memory, and probably he may feel the current of his blood somewhat accelerated by the recollection thereof.

Should this P.S. meet the Editor's views, he will please to make any amendment he deems necessary, and the author will be gratified.*

Kilham, East Riding, Yorkshire, Nov. 20.

* The Editor will feel obliged for any other P. S. such as this from Mr. Anderson.

BEDELL'S TREE.

BY RURICOLA.

THERE is in this neighbourhood a noble tree, memorable as well on its own account, being an uncommon specimen of its kind, as from local circumstances, which are likely to make it equally an object of interest to many of your readers. I allude to a *Sycamore*, in the garden of the Bishop's residence at Kilmore, about three miles from Cavan, and six from this place.

The tree, the chief dimensions of which I have procured on the spot for "The Field Naturalist," and which is in a flourishing and vigorous condition, is planted at the end of a fine terrace walk, at the back of the episcopal residence, overshadowing on one side the adjoining church-yard. Local tradition reports it to have been planted by the truly primitive and apostolical Bishop Bedell, who was advanced to the see in 1629, and died in February 1641-2, having been driven from his house the preceding year by the Irish rebellion, and compelled to take refuge in a ruinous castle, in one of the neighbouring lakes, properly called the Castle of Loughouter, but commonly known at this time in the country by the appellation of "Bedell's Tower." The Sycamore, of which I am speaking, is also a memorial of the Bishop, being known by the name of "Bedell's Tree."

Whether or not the tree was originally of his planting, seems to be questionable; indeed I have heard the supposed age, for it must in that case be near two hundred years old, alleged as improbable in so quick-growing and soft-wooded a tree as the sycamore: on the other hand, its bulk, and the extent of its boughs, which shall be particularised presently, must have required no small number of years to complete them; whilst the sheltered situation in which it grows, may be judged favourable to its protection and preservation.

However this be, it is certain that in the church-yard, which is contiguous to the Bishop of Kilmore's garden, and in a spot now overshadowed by a large limb of this majestic tree, were deposited the mortal remains of the venerable prelate, whose name it bears. At the solemnity of his interment, the Irish papists attended with great decency, and discharged a volley of shot over his grave, crying out in Latin, "*Requiescat in pace ultimus Anglorum!*"—"May the last of the English rest in peace!"—for, as recorded by Bishop Burnet in his life, they had often said that as they esteemed him the best of the

English Bishops, so he should be the last that should be left among them; and a popish priest, who attended on the occasion, is said to have paid him a tribute of respect and veneration in the following wish:—"*O sit anima mea cum Bedello!*"—"May my soul be with that of Bedell!"

The tomb, which marks the spot of the interment, is raised about four feet above the surface of the burying-ground, and is covered by a slab of black sand-stone coarsely carved, bearing at the top the private arms, as I suppose, of the Bishop, not impaled with those of the see, but surmounted by a rudely-formed mitre; under this a death's head and cross-bones, between an hour-glass and an open book, designed probably for the Bible, and at the bottom this inscription—

GUILELMI BEDEL
QUONDEM KILMORENS
IS. EPISCOPI.
DEPOSITUM.

Bishop Burnet says, that "this base inscription" was ordered by Bedell's will; but it is given by Burnet inaccurately, for he omits the name, and arranges the rest thus:—"*Depositum Gulielmi quondam Episcopi Kilmorensis;*" whereas the inscription, as actually arranged, and as "spelt by the unlettered muse," was transcribed by me from the tomb-stone as above.

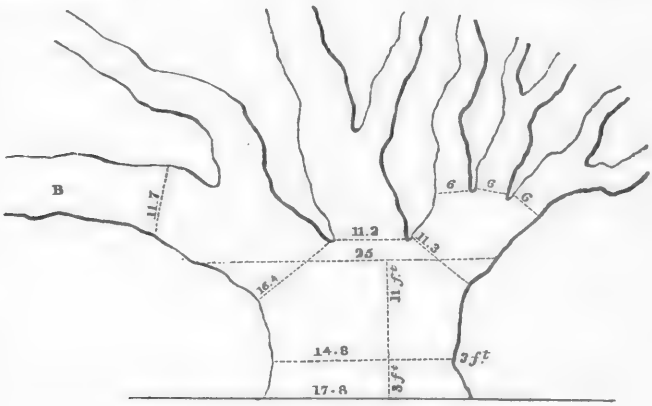
But this may be thought somewhat beside the scope of the "Field Naturalist." To revert, therefore, to our Sycamore, I will merely add, that its dimensions are these:—

	Feet.	Inches.
Circumference of the trunk on the ground	17	8
. . . . . three feet above	14	8
. . . . . eleven feet above	25	0

At this height, namely, 11 feet above the ground, the arms of the tree diverge, being respectively in circumference 11 feet 2 inches; 11 feet 3 inches; and 16 feet 4 inches. This last arm, after somewhat more than 3 feet, is again divided into two limbs, one of which being 11 feet 7 inches in circumference, passes off laterally in an angle, and, overhanging the adjoining church-yard, forms a canopy for Bedell's tomb.

The extent of the branches from north to south is 77 feet;
. . . . . east to west, 69 feet 8 inches;
thus covering an area, of which the circumference is about 230 feet.

The annexed sketch may give some idea of the appearance of the trunk, and of the manner in which the arms diverge from it. The different numbers indicate the circumferences of the parts respectively, as above enumerated. The limb marked B is that which projects over Bedell's tomb.



Trunk and lower limbs of Bedell's Tree.

Killeshandra, Nov. 18, 1833.

ON THE ORGANS OF HEARING IN INSECTS.

BY PROFESSOR G. R. TREVIRANUS, OF BREMEN *.

In the posthumous writings of M. Lyonnet, there is given the anatomy of the sheep tick, which belongs to M. Latreille's genus, *Microphthiris*. On the forehead of this animal the author discovered, at the place where the antennæ of insects are usually situated, two oblong protuberances, covering a hole under a double horny scale, in which lay a rounded body on a short footstalk. This projected from a white fleshy substance, composed of a number of globules, very transparent, and rather hard, the footstalk being fixed by a ligament on the interior of the hole. Lyonnet did not, however, come to any

* Translated from the German, by Edward Rennie.

definitive conclusion respecting the functions of this organ, though it appeared to have a structure analogous to ears.

I believed I had discovered the organ of hearing in the cockroach, (*Blatta orientalis*), in the form of an opening, covered by a membrane, white, interiorly concave, and situated at the base of the antennæ. Under it there is a projection from the brain (the first nerve knot or ganglion), which appears to perform the office of an auditory nerve. The membrane was not round but semicircular, and immediately bordering on the ring in which the antennæ are fixed. Under it I found a white horny substance, similar to that which covers the inner crustaceous envelope of the head. The projections from the brain appeared to give off nerves to the antennæ on each side; but I could not determine whether it spread out over the membrane, which I am inclined to consider the organ of hearing, as I could not otherwise conceive of its functions.

The antennæ of butterflies terminate in a clubbed tip, in which there are not muscles for producing motion, as in the body of these organs, but a half liquid substance filling the cavity. In the alderman butterfly (*Ammiralis Atalanta*), I found this substance intermixed with membranous matter, resembling in some degree the substance found in the auditory sacs (*hörsäcken*) of the frog, the calcareous portions being less than in the latter. I think it exceedingly probable that these clubs of the antennæ are the seat of the sense of hearing.

I formerly remarked (*Biologie*, vi. 359), that in the dragon fly, in the space on the forehead between the eyes and the antennæ, there is a projection covered with a thin membrane, filled with a whitish fluid, which is probably the organ of hearing.

In other winged insects, besides beetles, the interior of the head is large, and destitute of any apparent organ which could serve for the perception of sounds. In the breeze fly (*Tabanus bovinus*), there is on the upper part of the head, between the two compound eyes, a longish, slender (*schmale*), horny plate; and above this on the forehead, a small scutiform projection over a hole, between the inner side of the eye, the brain, and the under envelope of the head, continued below, and covered with a very thin, blackish, multiplicate, and uniformly dry membrane. When the head is opened under water, many air-bubbles escape from this hole. Besides small nerves appeared to me to be given off from the further side of the brain to be distributed to this membrane, though I could not make myself certain of this. Rosenthal observed a similar membrane in the flesh fly (*Musca carnaria*); but in

this insect there is no external aperture, though air tubes reach it through the scutiform protuberance.

In many yoke-winged flies, (*Hymenoptera*), such as bees, there are similar apertures in the head, which probably perform the function of hearing. But it is not, as Ramdohr believed, in that part of the head in bees with which the palpi are joined, that the organ of hearing is situated, as I formerly remarked (*Biologie*, vi. 356). A small sac indeed lies there, as I subsequently found, but this is simply one of the air cells.

NOTES. By T. C.

In your Number for September, you honoured me by inserting some observations respecting the cuckoo; I have much pleasure in saying, that the specimen to which I alluded, is still alive, though in a most shabby state, as to plumage, being without tail, and almost without wings; still, however, it eats as much as ever, and seems much better than could be expected, when we consider that it is moulting, and I have some hopes of its living through the winter.

I take the opportunity of troubling you with a few remarks, made at different times, and in different places.

The Swallow.—That solitary instances of swallows being discovered at times when they have been supposed to have departed, cannot be denied; for we have instances recorded by highly respectable, as well as accurate observers; but that this should be accepted as a proof that the swallow tribe *generally*, does not migrate, is preposterous. Is it not much more rational to suppose, that such individuals have been disabled by illness, or by some accidental injury, from having been hatched late, or from some other unknown cause, and have existed in a state of *stupor* (for I do not believe that any bird has the faculty of enduring torpidity,) till the first warm day has roused them, and they have sallied forth in search of food?

I should imagine that a bird might exist for some time in this way, either in the chimney in which it was hatched, or in some hole, where it might find a scanty supply of insect food; and it is not certain that when these individuals were observed, that was the only time they had ventured from their hiding places, but they might have left them many times without being observed. Now, though this may appear improbable, how else are we to account for the appearance of swallows in the winter? As to the absurd idea of torpidity, were I even to find a

swallow in some hole in the winter, I should rather believe that it had taken shelter there from the cold, and that it would have died, if not released, than I would believe it to be in a state of torpidity, and that, on the return of spring, it would have aroused and joined its companions.

It is very different with quadrupeds; the cold weather would overtake them long before they could reach a warmer climate, even if they were not prevented by seas and other obstacles; but, with BIRDS, what reason is there for supposing them incapable of migration? they can cross land and sea with most astonishing swiftness. No one doubts that the woodcock and other short-winged birds actually migrate, and why should we believe that the swallow, which of all birds is the best provided with the means of flight, should remain with us in a state of *torpidity*, for want of power to seek a warmer climate?

No one can deny, that it is a most wonderful faculty which enables birds to resist the obstacles which they must necessarily meet with in their passage over trackless seas; but the same power which enables them to support themselves on wing, which guides them across immense tracks of land and sea, and which teaches them whither to direct their course on the change of climate, has endowed them with power and instinct to overcome every difficulty which they may encounter, and has enabled them to resist every storm and every obstacle which would intercept their course, or retard their progress.

It is a mistake, that the kingfisher is a shy and unsociable bird; I have often enjoyed its company when fishing, and a friend of mine found two eggs in a hole, which he says belonged formerly to a rat, in the bank of an artificial river, flowing through a garden, in which children were constantly playing; these eggs were nearly spherical, and were deposited at the end of the hole, without any kind of nest, unless a slight hollow may be worthy of the name.

Much confusion appears to have existed respecting the common starling; whether such a bird as the solitary thrush exists in this country or not, I cannot pretend to say; but it is certain, that the common stare does not obtain its black plumage until the end of July or beginning of August, being of a dingy hair-brown colour; this plumage is sometimes very smooth, and gives the bird the appearance of an adult, but it only remains until the first autumn, when the black feathers appear first on the sides, and gradually spread over the whole body.

The plumage, however, is not in perfection until the second moult, when it assumes the beautiful gloss of the adult bird.

THE EDITOR'S MEDICAL BOTANY*.

From the title of this work it may be supposed that it is exclusively of interest to the medical profession; but though it is mainly adapted to this purpose, it may also be very useful to all young botanists who are desirous of a knowledge of the two great systems of Linnæus and Jussieu. In the Alphabet of Botany, indeed, outlines of these two systems are given, as full as the space there would permit; but here, in the Medical Botany, numerous practical examples are given from medicinal plants, with figures and accurate dissections, to show the structure of the flowers. We think the readers of our Magazine will be pleased to see a specimen of these illustrations, as the title of the work might prevent many of them, perhaps, who do not belong to the medical profession, from looking into it. We begin with an illustration (in this case not taken from a medicinal plant), to show the principal parts of a flower.

Example of the principal parts in a flower. Nepal Cinquefoil (*Potentilla Nepalensis*).

a Calyx.
b Blossom of five petals.
c Stamens.
d Pistils.

We shall next go over the twenty-four Linnæan classes in their order, as they are illustrated in this little book.

---

* Alphabet of Medical Botany and Zoology, for the Use of Beginners. Just published.

FIRST CLASS, MONANDRIA.

GINGER (*Zingiber officinale*).

This plant, which belongs to the Jussieuan order, *Scitamineæ*, is a native of the East Indies, and is also cultivated in the West. The root is creeping and perennial, with fleshy finger-like tubers, which is the part used medicinally. These, when the stalks fade, are taken up like potatoes, scraped, washed, and dried in the sun, and constitute white ginger. By scalding the tubes before drying, black ginger is formed. The flowers grow in a club-shaped spike.

a Flower.
b The stamen and pistil.

SECOND CLASS, DIANDRIA.

OLIVE (*Olea Europæa*).

This plant, which belongs to the Jussieuan order, *Oleinæ*, is a native of the north of Africa and of the south of Europe, where it is much cultivated. The flowers are in opposite clusters, half the length of the leaves, on short flower stalks; the calyx four-cleft and regular; the corolla white, four-parted, regular, and spreading. The fruit is a smooth oval plum, bitter and nauseous. The ripe fruit is bruised in a mill, to procure the oil, which is the part used.

a Flower, showing the *two* stamens and pistil.
b Pistil and seed organ.

THIRD CLASS, TRIANDRIA.

Sugar Cane (*Saccharum officinarum*).

This plant, which belongs to the Jussieuan order, *Gramineæ*, is a native of Asia, and also, it is said, of America, where it is cultivated. The calyx, as well as the corolla, is two-valved, the flowers being in terminal panicles of many spikes, very downy. Sugar is the expressed juice evaporated of the fresh canes, and undergoes various preparations.

a Flower, showing the three stamens.

b The seed-organ, surrounded with hair.

FOURTH CLASS, TETRANDRIA.

Contrayerva (*Dorstenia contrayerva*).

This perennial plant, which belongs to the Jussieuan order, *Urticeæ*, is a native of tropical America. The flowers are very small, closely crowded, and immersed in a common one-leaved fleshy receptacle, where also the seeds are in sockets. The root, which is the part used, is spindle-shaped, knotty, and branchy.

a Flower opened, showing the four stamens, single forked pistil, and the seed organ.

FIFTH CLASS, PENTANDRIA.

Hemlock (*Conium maculatum*).

This biennial plant, which belongs to the Jussieuan order, *Umbelliferæ*, is a native of waste places and hedge banks in Britain, flowering in June and July. The flowers, which are white, grow in umbels of ten or twelve rays; the corolla has five inflected petals, the outer ones larger than the inner; the seeds are nearly globular, with five streaks, notched at the side, and smooth; the stem is smooth, shining, and marked with irregular spots of brownish purple. The dried leaves are used, and also an extract.

a Flower, showing the five stamens and two pistils.

SIXTH CLASS, HEXANDRIA.

Meadow Saffron (*Colchicum autumnale*).

This perennial plant; which belongs to the Jussieuan order, *Colchiceæ*, is a native of moist meadows in Britain, flowering in September, and ripening its seed the following June. The flower, which is lilac purple, appears after the spring leaves have withered away. There is no calyx; the corolla is six parted, the tube extending to the bulb; the seed organ has three lobes and three cells. The expressed juice of the flowers, the seeds, and bulbs, which are taken up from June till August, are used.

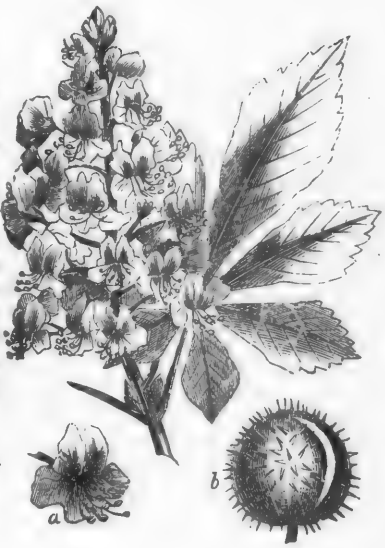
a The Plant as it is seen towards the close of autumn.
b The same, as it appears in the spring following.
c The flower opened to show the six stamens.
d The three pistils.

SEVENTH CLASS, HEPTANDRIA.

Horse Chestnut (*Æsculus Hippocastanum*).

This tree, which belongs to the Jussieuan order, *Aceridæ*, is a native of Asia, cultivated in Britain, and flowering in April and May. The flowers, which are reddish white, grow in large spikes. The calyx has one inflated leaf; the corolla five spreading downy petals arising from the calyx: the seed organ is three-celled; the seeds are large, smooth, and round. The bark is the part used.

a Flower, showing the seven stamens and single pistil.
b The fruit.



EIGHTH CLASS, OCTANDRIA.

Balsam of Gilead Tree (*Amyris Gileadensis*).

This tree, which belongs to the Jussieuan order, *Terebinthaceæ*, is a native of Abyssinia. The flowers, which are white, grow three on a stalk, and two of these are commonly infertile. The calyx is four-toothed and persistent; the corolla has four cancave spreading petals; the seed-organ is egg-oblong; the fruit opens with four valves, containing a small nut. The part used is a balsam, procured by incision.

a Flower.
b The same, showing the *eight* stamens, and single pistil.

NINTH CLASS, ENNEANDRIA.

Cinnamon Tree (*Laurus Cinnamomum*).

This evergreen tree, which belongs to the Jussieuan order, *Laurineæ*, is found in tropical Asia, particularly Ceylon, flowering in January. The flowers, which are white, grow in axillary panicles. There is no calyx; the corolla has six petals, oval pointed, and spreading; the fruit is an oval berry, with a depressed tip, and one seed. The bark, which is the part used, is taken off from May till October.

a Flower, showing the nine stamens.

b Anther magnified, showing the apertures, with their lids, for the discharge of the pollen.

c The single pistil.

TENTH CLASS, DECANDRIA.

Senna Plant (*Cassia Senna*).

This annual plant, which belongs to the Jussieuan order, *Leguminosæ*, is a native of Africa, flowering in July and August. The flowers, which are yellow, grow in loose spikes; the calyx has five narrow leaves; the corolla has five petals, the two upper smaller than the three under ones; the fruit has two valves and from six to nine cells, with a seed in each. The leaves, which are the part used, are winged, the leafits being *unequal at the base.*

a Flower showing the ten stamens, and single pistil.

ELEVENTH CLASS, DODECANDRIA.

Agrimony (*Agrimonia Eupatoria*).

This perennial plant, which belongs to the Jussieuan order, *Rosaceæ*, is a native of Britain, flowering in June and July. The flowers, which are yellow, grow in a tall bunch. The calyx is five-toothed; the corolla has five concave notched petals; the seed organ has a fleshy receptacle; the seeds are two, egg-oblong and flat. The whole herb is used.

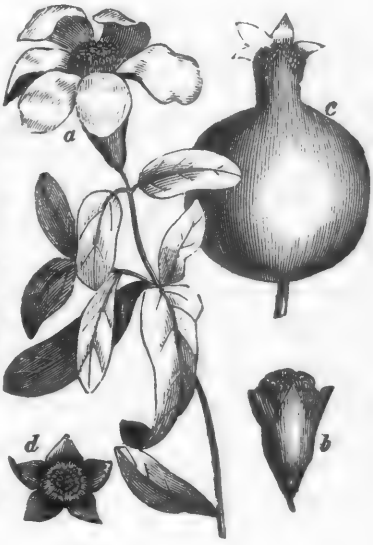
a Flower, showing the twelve stamens.

b The five pistils.

TWELFTH CLASS, ICOSANDRIA.

Pomegranate Tree (*Punica Granatum*).

This tree, which belongs to the Jussieuan order, *Myrtaceæ*, is a native of the tropics. The flowers, which are of a fine deep red, are sessile, and grow in threes or fours together. The calyx is superior, thick fleshy, red, and five-cleft; the corolla has five wrinkled petals; the fruit has a red succulent pulp, with many seeds. The rind of the fruit is the part used; the bark of the root has similar properties.



a The flower.

b The calyx and stamens.

d Another view of the same, showing the attachment of the stamens to the calyx.

c The fruit.

THIRTEENTH CLASS, POLYANDRIA.

White Poppy (*Papaver somniferum*).

This annual plant, which belongs to the Jussieuan order, *Papaveraceæ*, is a native of Asia, extensively cultivated, flowering, with us, in June and July. The flower is large, and usually white, but varieties of red and purple colour are not uncommon. The calyx has two large smooth leaves; the corolla has four large wavy petals; the seeds, sometimes called *maw seed*, are numerous, small, and greyish white. The seed-heads (not the seeds) are the part used, as well as the concrete juice or *opium*, procured from them by incision.

a The seed-organ, showing the stamens attached to the receptacle.
b The fruit.

FOURTEENTH CLASS, DIDYNAMIA.

Foxglove (*Digitalis purpurea*).

This biennial plant, which belongs to the Jussieuan order, *Scrofulariæ*, is a native of Britain, flowering from June till August. The flowers, which are large and purplish red, grow all on one side in a fine showy spike. The calyx is five-parted, the uppermost division the narrowest; the corolla has one large bell-shaped petal, spotted and hairy within, the upper lip slightly cleft; the seed organ has a double partition with many seeds. The leaves, gathered when the plant is in flower, are the part used.

a Part of a flower, showing the *four* stamens, two short and two long.
b The pistil.

FIFTEENTH CLASS, TETRADYNAMIA.

Cuckoo Flower, or Ladies' Smock (*Cardamine pratensis*).

This perennial plant, which belongs to the Jussieuan order, *Cruciferæ*, is a native of Britain, flowering in April and May. The flowers, which are pale purple, or rather purplish white, grow in bundles. The calyx is somewhat gaping and yellowish green; the corolla has the petals large and slightly notched; the seed pod opens when ripe with an elastic spring. The flowers are the part used.

a The six stamens, four long and two short.

b The pistil.

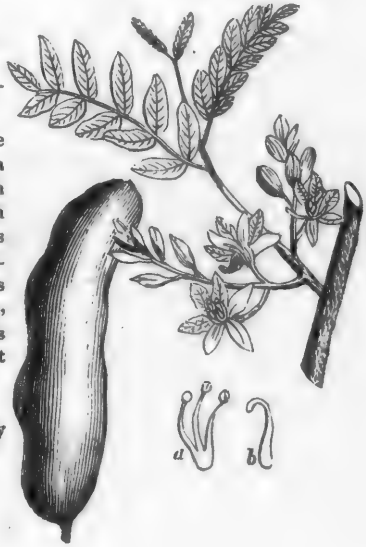
SIXTEENTH CLASS, MONADELPHIA.

Tamarind Tree (*Tamarindus Indica*).

This tree, which belongs to the Jussieuan order, *Leguminosæ*, is a native of the tropics, flowering in April and May. The flowers, which are yellowish, grow in loose bunches of five or six; the calyx is straw yellow and four-parted; the corolla has three egg-oblong, indented petals, plaited at the margin; the seed pods contain a pulpy substance (the part used) enveloping the seeds.

a The three stamens, united by their filaments into one body.

b The pistil.

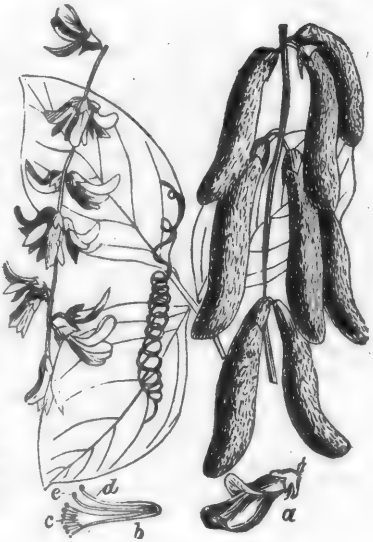


SEVENTEENTH CLASS, DIADELPHIA.

Cowhage (*Dolichos pruriens*).

This perennial climbing plant, which belongs to the Jussieuan order, *Leguminosæ*, is a native of the tropics, flowering from September to March. The flowers, which are blood red, grow in drooping spikes. The corolla has two oblong scales at the base of the standard; the fruit is a leathery pod, in the form of the Italic *f*, containing from three to five seeds. The part used are the short brown bristly hairs which cover the pods.

a The flower.
b The ten stamens and pistils which lie folded up in the keel-like petals of the flower. The stamens are divided into two bodies, of which *nine* form the lower, *c*, and *one*, the upper, *d*.
e The pistil.



EIGHTEENTH CLASS, POLYADELPHIA.

Lemon Tree (*Citrus medica*).

This evergreen tree, which belongs to the Jussieuan order, *Aurantiæ*, is a native of Asia, cultivated in the south of Europe. The flowers, which are large and purplish white, grow on the smaller branches. The calyx is saucer-formed, five-cleft, with pointed teeth; the corolla with five petals oblong and concave; the fruit is large, and egg oblong. The juice of the fruit, and the essential oil of its rind, are the parts used.

a Flower, showing the division of the stamens into three bundles.
b Section of the fruit.

NINETEENTH CLASS, SYNGENESIA.

Chamomile (*Anthemis nobilis*).

This perennial plant, which belongs to the Jussieuan order, *Corymbiferæ*, is a native of Britain, flowering in August and September. The calyx is hairy, and has broad membranaceous edges; the florets of the disk are yellow—of the circumference, white, and more than five in number; the receptacle is chaffy; the seed is downless. The dried flowers are the parts used.

a Florets of the circumference; *b*, florets of the disk; *c*, the receptacle, showing the insertion of the two kinds of florets; *d*, floret of the circumference, consisting of a single strap-shaped petal; *e*, floret of the disk; *f*, the five stamens, adhering by their anthers, together forming a tube, through which the single pistil, *g*, passes.

TWENTIETH CLASS, GYNANDRIA.

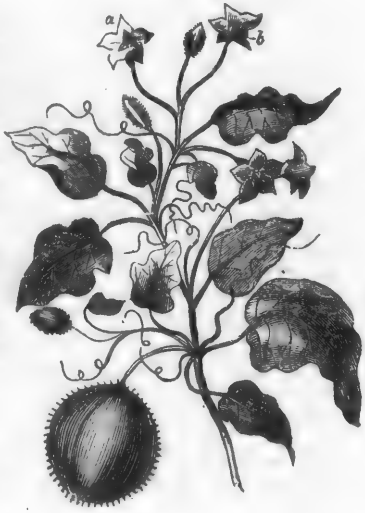
Snake Root, or Birthwort (*Aristolochia Serpentaria*).

This perennial plant, which belongs to the Jussieuan order, *Aristolochiæ*, is a native of North America, flowering in May and June. The flowers, which are brownish purple, grow upon bending foot stalks, from the joints near the root. There is no calyx; the corolla has one petal, with a triangular lip, and bulging out at the base; the seed vessel is inferior, with six cells and many seeds. The root, which consists of bundles of yellow fibres, is the part used.

a The flower; *b*, section of the same, showing the situation of the stamen and pistils, *c*; *d*, the stamens attached to the pistils, *e*.

TWENTY-FIRST CLASS, MONŒCIA.

Colocynth Plant, or Bitter Cucumber (*Cucumis Colocynthus*).



This annual plant, which belongs to the Jussieuan order, *Cucurbitaceæ*, is a native of Africa, flowering from May till August. The male flowers have the calyx five-toothed; the corolla five-parted; the stamens three. The female flowers have the calyx and corolla like the male; the pistil is three-cleft. The fruit is the size of a small orange, and of a yellow colour. It is the fruit which is used after it has been peeled and dried.

a The male flower, containing stamens.

b The female flower, containing pistils.

TWENTY-SECOND CLASS, DIŒCIA.

Hop (*Humulus lupulus*).

This climbing perennial plant, which belongs to the Jussieuan order, *Urticeæ*, is a native of Britain, extensively cultivated, flowering in July. The flowers are furnished with flower scales. The male flowers which are whitish, and grow in panicles, have a five-leaved calyx and no corolla. The female flowers have a one-leaved, entire, spreading calyx and no corolla. The fruit cones (*strobili*), are egg-oblong and pendulous. It is the cones, after drying in a kiln, which are used.

a, a branch of the male plant; *b*, the male flower, bearing stamens only; *c*, another; *d*, a hop, or catkin of flowers, from the female plant; *e*, a single scale of ditto; with the pistils and germ at its base; *f*, the same, enlarged.

TWENTY-THIRD CLASS, POLYGAMIA.

Fig Tree (*Ficus Carica*).

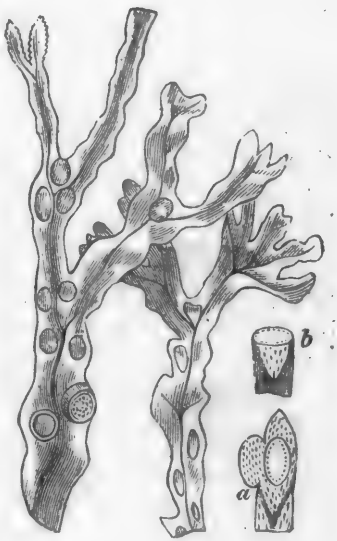
This tree, which belongs to the Jussieuan order, *Urticeæ*, is a native of Asia, not uncommon in gardens, and flowering in June and July The male flowers have the calyx three-parted, and three stamens; the female flowers have the calyx five-parted, and one pistil: neither has a corolla. The fruit, which is the part used, in a dried state, is pear-shaped and fleshy.

a, section of the fruit, bearing in its inner side, *male*, female, and hermaphrodite flowers.
b, male flower.
c, female flower.

TWENTY-FOURTH CLASS, CRYPTOGAMIA.

Bladder Wrack (*Fucus vesiculosus*).

This plant, which belongs to the Jussieuan order, *Algæ*, is a native of the British seas, bearing its fruit in spring. The leaf is smooth, glossy, and dark olive, having a mid-rib tapering from the base. The male vesicles are hollow; the female vesicles filled with jelly. The whole plant is used.



a Vesicles, containing the spores.
b Section of the same.

THE FIELD DIARY OF SOLITARIUS.

JANUARY. This month has not hitherto presented me with anything *peculiar* to it, although I have paid as much attention to field pursuits during its continuance as I have in other months. The active reader, however, must not let this remark deter him from searching the fields at this time of the year, for much may be noticed by him that has escaped my observation.

FEBRUARY 7, 1832. At Kilburn I found the larva of the goat-moth (*Cossus ligniperda*) concealed in the earth beneath a stone, which is rather a singular situation to find it in, as it generally inhabits willows and poplars, to which and other trees it is very destructive.

— 8, 1831. In the soft earth of a bank at Kilburn, I found several specimens of *Chrysomela staphylea*, and of *Pœcilus cupreus*.

MARCH 5, 1833. The dung-fly (*Scatophaga stercoraria*) appeared.

— 16, 1831. The red-ants (*Formica rufa*) commenced their labours in Kensington Gardens.

— 17, 1837. Found the scarlet satin-mite (*Trombidium holosericeum*) in Kensington Gardens, where I noticed that the squirrels are now in a state of activity, jumping with their wonted agility from bough to bough.

— 19, 1833. At Paddington, in the afternoon, heard the song of the blackbird (*Merula vulgaris*) for the first time this year. Saw a *Scarabæus vulgaris* on the wing.

— 27, 1831. Heard the skylark (*Alauda arvensis*) for the first time this year, at Harlesdon, on the Harrow Road.

— 22, 1832. At Lee, observed a flock of fieldfares, and a single specimen of the nettle-butterfly (*Vanessa Urticæ*). Snails were copulating.

— 25, 1831. The common bat (*Vespertilio Pipistrellus*, GEOFF.*) flying at Kilburn, at about seven o'clock in the evening. This species is said to fly throughout the year; but although I have observed it in the cold evenings of October, November, and December, yet I have never seen it during the frosty nights of January and February. In

* The Rev. Mr. Jenyns, in the Linnæan Transactions, denies that our common-bat is, as is generally supposed, the Vespertilio murinus of Linnæus, and endeavours to prove (and I think with success) that it is the V. Pipistrellus of Geoffroy. I have therefore adopted the latter term.

the selection of its haunt, it does not seem to give preference to either secluded or quiet places; for I have observed it flying over the Elephant and Castle at Newington, and other places equally noisy. But the great bat appears to attach itself to still places, usually in the neighbourhood of water, flying over canals and reservoirs, where its prey probably consists of insects of the genera *Botys, Hydrocampa, Alucita,* &c.

— 25, 1832. *Timarcha coriacea* abundant upon Blackheath.

— 25, 1833. Found *Acanthosoma virens, Coccinella 7 punctata,* and *Timarcha coriacea* on Hampstead Heath.

— 30, 1832. The water-measurer (*Hydrometra Stagnorum*) appeared upon the brooks at Lee, Kent.

April 7, 1833. The house-fly (*Musca domestica*) appeared.

— 6, 1833. On the skirts of the wood near Shooter's Hill, I observed the nettle-butterfly (*Vanessa Urticæ*), the brimstone-butterfly (*Gonepteryx rhamni*), the peacock-butterfly (*Vanessa Io*), and the cabbage-white butterfly (*Pontia Brassicæ*).

— 13, 1831. Noticed a large flock of fieldfares at Kilburn.

— 13, 1833. The bed-flea (*Pulex irritans*) appeared.

— 24, 1832. Observed at Blackheath the first pair of swallows I have seen this year.

— 27, 1831. Swallows made their appearance at Kilburn.

— 29, 1831. Found several chrysalides of *Vanessa Urticæ* at Twickenham.

— 30, 1831. At Twickenham, heard the cuckoo for the first time this year.

May 1, 1833. On Wandsworth Common found the purple dorr-beetle (*Geotrupes sylvaticus*) and *Silpha levigata.*

— 9, 1831. Found the larva of *Arctia caja.*

— 11, 1832. In a field near the Harrow Road found the larva of *Abraxas grossulariata.*

— 18, 1832. In the course of a walk from Blackheath to Chiselhurst and back, I found several specimens of *Curculionidæ* (including *Otiorhynchus scaber* and *Polydrusus uniformis*) *Chrysis ignita, Seioptera vibrans, Libellula vulgata,* &c.

— 19, 1833. Some specimens of *Cynips Rosæ* were hatched in one of my chip-boxes, from a gall found upon a rose-tree.

— 20, 1831. In Fitzroy Square I noticed in the evening what, in my notion, was a very singular occurrence. There was a very beautiful halo or circle on one side of the moon, but not round it as is usual. It

attracted the attention of several persons, all of whom appeared to regard it as something extraordinary.

— 22, 1833. *Ptinus pectinicornis* appeared.

— 30, 1832. In some fields near Westbourn Green, Paddington, I captured three specimens of the orange-tip butterfly (*Pontia cardamines*).

— 30, 1833. In Epping Forest, captured *Abia sericea, Cetonia aurata, Elater fulvipes,* a *Chrysopa* and a *Pimplia, Hipparchia Mægera, Hipparchia Pamphilus, Lycæna phlæas, Polyommatus Alexis, Callimorpha Jacobææ,* several specimens of the long-horned japan moths (*Adela*), and the larva of *Arctia caja.*

June 8, 1831. *Syrphidæ, Cynipidæ, Culicidæ, Libellulidæ, Bombi, Tortrix viridiana,* and the larvæ of *Cassida equestris,* very abundant in the fields between Kilburn and Hampstead.

— 13, 1832. Found *Chrysomela Polygoni.*

— 21, 1833. In Epping Forest, found several specimens of *Hipparchia Ægeria.* This species of butterfly, from repeated observation and an attentive search, I observed was local to one particular dry ditch, at the Wanstead side of the forest, where I could obtain specimens every day during their continuance, although elsewhere about Wanstead, Ilford, &c., I could not meet with a single one.

— 23, 1833. *Vanessa Urticæ* made its appearance at Laytonstone, which is a much later date than usual.

— 25, 1832. In Kensington Gardens, took several specimens of *Cantharis biguttata* ; and two moths, somewhat resembling a species of *Tinea,* being of a black colour, except on the exterior margin of the superior wings, where there is a conspicuous line of white.

— 30, 1833. A female of *Pygera bucephala,* confined in one of my boxes, laid her eggs therein.

July 11, 1832. Found the larva of the peacock-butterfly, (*Vanessa Io*) and observed the meadow-butterfly (*Hipparchia Jurtina*) in great abundance at Kilburn, and caught *Carabus catenulatus* on Hampstead Heath.

— 19, 1833. The magpie-moth (*Abraxas grossulariata*) appeared at Laytonstone.

— 24, 1833. Saw the brimstone-butterfly (*Gonepteryx Rhamni*) near Caen Wood, Hampstead.

— 27, 1833. In Epping Forest, captured *Vanessa Io, Hipparchia Jurtina, Hipparchia linea, Hipparchia Pamphilus, Polyommatus Alexis, Lycæna phlæas,* and *Geometra illunaria.*

JULY 28, 1833. *Cerambyx moschatus* taken at Norwood.

AUGUST 1, 1832. Found in Kensington Gardens the spider's eggs, figured in the Field Naturalist (p. 180), and from which emerged the Ichneumon-flies, called *Microgaster alvearius*.

— 7, 1833. On Wormwood Scrubbs, caught *Hipparchia Pamphilus* and *Lycæna phlæas*.

— 9, 1833. On Hampstead Heath and Golder's Green, captured *Pontia Brassicæ, Hipparchia Mægera, Hipparchia Pamphilus, Polyommatus Alexis, Vanessa Io, Vanessa Urticæ, Cassida equestris, Hæmatophora pluvialis,* and *Carabus monilis*.

— 20, 1833, In Hornsey Wood, found *Pœcilus cupreus* *.

— 23, 1833. Blackberries observed to be very plentiful, and remarkably fine, in the hedges about Shooter's Hill.

SEPTEMBER 2, 1832. At the pretty little village of Wilsdon, entomologising with a friend, we found in some ponds, the boat-fly (*Notonecta glauca*), the water-scorpion (*Nepa cinerea*), the water-measurer (*Hydrometra stagnorum*), *Ranatra linearis*, and several larvæ of *Libellulidæ*. We also found *Necrophorus sepultor*, three solitary specimens of *Hipparchia Jurtina* and of *Polyommatus Alexis*, which is now nearly out of season.

— 3, 1833. At Hendon, saw a heron flying over head, and found the larva of *Lasiocampa Rubi*.

— 14, 1833. Found *Timarcha coriacea* on Old Oak Common, Wilsdon.

— 16, 1832. At Hampstead, with a friend, found *Chrysomela nigricornis* very abundant in the gravel pits, and in a pond found *Geotrupes stercorarius* infested with *acari*. We also found two specimens of *Catocala nupta*, one of *Lycæna phlæas*, and the larva of *Arctia caja*.

— 29, 1832. The larvæ of the buff-tip moth (*Pygera bucephala*) very plentiful in Hyde Park, where it committed extensive ravages upon the foliage of the trees.

OCTOBER 2, 1833. Found *Carabus catenulatus*, and a species of *Chrysopa*, in Copenhagen Fields.

— 11, 1833. In the river Wandle, found *Notonecta glauca, Hydrometra Stagnorum*, and *Gyrinus natator*.

— 15, 1832. At Hampstead, observed an alderman butterfly

* I know not what the natural food of this is, but I found it some time since eating a piece of boiled potato with great avidity.

hovering round a glass-house, and making many vain attempts to get at the plants within. This species of butterfly is rather scarce in the fields around London.

— 26, 1833. Starlings observed in flocks at Kilburn and Hampstead.

— 27, 1833. At Hampstead, in company with a friend, we found *Plusia gamma*, *Hydrophilus piceus*, and the larvæ of *Libellulidæ*. Saw *Mesembrina equina*.

November 13, 1833. On Wormwood Scrubbs, observed a few daisies still in flower.

— 17, 1833. The day excessively warm. Flies observed to be very abundant in Gray's Inn Lane; observed a bat on the wing at about five o'clock, at Highbury.

December 5, 1833. At Wilsdon, found *Crioceris cyanella*, concealed under moss.

— 17, 1832. In some fields at Paddington, searching for insects, few of which were to be seen on account of the boisterous wind. Windy days are the least favourable to entomologising, as all insects (excepting the aquatic, but to many of these even the observation is applicable) have an antipathy to wind; and beetles, notwithstanding their being encased by a hard covering, will, during its continuance, seek some place of shelter to defend themselves from its annoyance. The only insects I met with to-day, were *Gyrinus natator*, *Notonecta glauca*, several larvæ of *Ephemeræ* and of *Libellulidæ*.

— 25, 1832. Saw a single specimen of *Coccinella bipunctata* in the Commercial Road.

Paddington, Dec. 1833.

ON PROCURING SPECIMENS OF THE SMALLER BRITISH LAND BIRDS FOR A MUSEUM,

WITH OBSERVATIONS ON THE HABITS OF VARIOUS SPECIES.

BY EDWARD BLYTH.

Having generally remarked, in the numerous public and private collections of stuffed British birds which I have visited, that in the hurry to be all at once possessed of specimens of every species, little or no attention has been paid to the state of feather in which they were obtained, I conceive that it would be useful to many who are now forming collections, to point out, as far as I am able, the particular

season of the year in which each species is to be obtained in its highest degree of beauty; and, as the plumage of many birds varies greatly in different individuals, according to age, sex, and season, I shall also endeavour to explain what number of specimens of each sort are necessary to illustrate the species properly, and likewise the precise periods at which the contrasts they afford would be exhibited to the greatest advantage.

In the birds of prey (*Accipitres*, LINNÆUS), and in various aquatic groups, the changes of appearance which the same species presents, at different periods of existence are, in many instances, so considerable, as to have occasioned an unnecessary multiplication of species in the works of the earlier naturalists; but as the variations to which these birds are subject are for the most part dependent on age more than upon season, and as they have moreover long occupied the attention of the first ornithologists, who in their several works have described them with great minuteness, a repetition of them here would be superfluous. The more particular object of this little essay is to note down a variety of minor changes, which, from different causes, take place in the plumage of the smaller birds, and which materially affect, in many cases, the beauty of their tints; for which reason, all who are forming museums should be acquainted with them.

It would be foreign to my purpose here to give minute directions upon what I consider to be the best method of mounting and preserving skins; I am of opinion, indeed, that no kind of written direction is of much use towards teaching the art of *taxidermy*, as it is now fashionably called. It requires a vast deal of patience, and practice, and close attention, to enable a person to stuff birds well, and those generally become the greatest proficients who have taught themselves the art by dint of their own ingenuity and perseverance. A few words, however, on the subject of bird-stuffing, may not perhaps be deemed irrelevant. I want to recommend to the great majority of those who undertake to preserve animals, the study of living nature, at present so very generally neglected. There are hundreds of persons who understand extremely well how to take off and prepare the skin of a bird, and who can afterwards even mount it in the very best possible style, but who have nevertheless no kind of notion whatever of finishing it off in even a tolerable manner. This, of course, arises from their having never studied the living originals. The specimens are got up without attention either to form, attitude, or proportions, and they have, therefore, to persons accustomed to admire the beauty and symmetry of

living nature, the appearance of mummies, rather than of artist-like attempts to imitate the appearance of life; or they may appositely enough be compared to an endeavour to delineate the human figure by one who had never studied its proportions.

To naturalists who might wish to possess a small museum of British birds, but who cannot well spare the time it requires to prepare a number of specimens, a general contract with a person of this kind, who is capable of undertaking the more mechanical parts of the operation of bird-stuffing, will be found to prove very advantageous. In mounting the skin of a bird, the principal faults of stuffers are, generally, the filling of it out with a great deal too much tow, or other stuffing, especially about the neck — the putting too much wire into the neck, which effectually precludes all possibility of restoring it to anything like its natural form — and in drawing up the skin close, when sewing up the incision made for the purpose of extracting the body; a very common practice, which contracts the under parts out of all shape and proportions, but which is totally unnecessary, as even in the living birds the feathers of these parts completely conceal a very wide space of naked skin, or which is covered only with a little down. These, however, are faults which require but to be pointed out to be avoided. With care, attention, and a little practice, and a tolerable share of patience withal, the difficulties of this first part of the operation may be soon surmounted; and a specimen thus far well prepared may, while the skin remains moist and flexible, be placed by a skilful hand into any kind of position. But in this it is that most stuffed birds are spoilt, it being here that an acquaintance with the peculiar attitudes of each species is necessary, and that a correct knowledge of proportions and general form is required: in this part of the operation it is that the various little niceties of outline, the natural curves, the gentle sinkings and convexities, the expression of the countenance, &c., must be given; a want of attention to which in the generality of museum specimens is the cause of their horrid stiffness and deformity.

It is a very common practice among bird-stuffers, when finishing off a specimen, to endeavour to render one side smooth and even at the expense of the other; which latter, when the bird is encased, is supposed not to be at all seen. Specimens that are thus prepared, however, can never have the appearance of life; and to persons who have any knowledge of proportions their faultiness is detected at a glance. A specimen is badly stuffed if it does not on every side bear inspection.

With regard to the numerous peculiarities of attitude and position

among the smaller birds, a proper knowledge, I think, cannot well be acquired without keeping the different species in confinement; and though, perhaps, the idea of this may appear rather formidable at first sight, the difficulties of doing so are by no means so great as might be anticipated. A cage containing twenty birds requires no more attention than a cage containing one; both should be daily cleaned out, and both should every day be replenished with fresh food. To the naturalist, indeed, who is desirous of obtaining a thorough insight into the manners and dispositions of the feathered race, various other advantages accrue from keeping the different species in confinement, besides the mere study of their figures and attitudes. In the economy of most birds there are a number of little curious peculiarities, which often throw considerable light on their natural history, but which can only be learned by studying their habits in the cage. By keeping birds in confinement, also, a thorough acquaintance with their various notes is obtained, which of course greatly facilitates all field observation of their habits. But it is not from wild and timid newly-caught birds that information of this kind is to be derived, nor is it from such that a knowledge of their free unrestrained positions can be acquired; it is only when they have become familiar, and devoid of fear and restraint, that their habits become interesting in confinement. A wild bird, however, becomes speedily familiar, if placed with a number of tame companions; though it is advisable, when newly caught, to keep it a few days by itself.

The natural positions of most of our British birds require a great deal more study than is usually bestowed upon them by stuffers; and it is a matter of primary importance to all who intend forming collections, to become minutely acquainted with the general appearance, and with the peculiar attitudes of each separate species when alive. Indeed, the great diversities in this respect, among the smaller kinds, are often surprising. The natural positions of the most approximate species differ in many instances widely; and it consequently requires a close and intimate acquaintance with the living originals to enable even a proficient in the art of mounting skins to give to stuffed specimens the appearance they presented when alive. Excepting in the case of absolute rarities, examples of which might never, perhaps, be a second time obtained, it would be as well not to attempt any bird whatever until this minute knowledge of its appearance and natural attitudes when living had been thoroughly and correctly acquired. It is not enough even that the positions of an assimilant species had been

minutely studied: the characteristic attitudes of the siskin (*Carduelis spinus*) are not to be learned by studying those of a goldfinch (*C. elegans*); nor can a knowledge of the natural positions of the chiffchaff (*Sylvia loquax*) be obtained by observing those of a wood-wren (*S. sibilatrix*); again, many of the most common attitudes of the babillard (*Ficedula garrula*) would be altogether unnatural in either the white-throat (*F. cinerea*) or in the blackcap (*F. atricapilla*).

It is now quite time, however, that I proceed to the immediate object of this paper, which is to point out the different periods of the year in which specimens of the various British land birds should be obtained for stuffing. To commence with the predacious species (*Accipitres*, Linn.) These vary exceedingly in their plumage; but as their tints are in no case affected by change of season, and as the species are for the most part rare, and difficult to obtain, it would be useless to say much upon them. To illustrate the *Accipitres* well, at least three specimens of every species should, if practicable, be preserved, representing the adult male, the adult female, and the young in its first or nestling plumage. As they do not much injure their feathers, they are generally in a fit state for stuffing, excepting, of course, during the autumnal moult; though even then it is often interesting to represent them when in a state of change. Many species, as the common buzzard, (*Buteo vulgaris*,) and the marsh harrier, (*Circus rufus*,) exhibit much individual variety, and such cannot be well illustrated without a number of specimens. The common barn owl (*Aluco vulgaris*) also varies very much in colour and in markings. I have lately examined a considerable number of these birds, and have hardly found two of them alike. They differ very much in the number and disposition of the black bars on the wings and tail; in one very beautiful specimen, which was lately shot in this neighbourhood, these bars were altogether wanting. In this species, contrary to what is usual among birds of prey, the two sexes are about equal in size; the male may generally be distinguished by the greater quantity of ash-colour on the upper parts, and by the under parts being of a buff-colour, more or less studded with black spots: in the female, the under parts are often pure white, without a spot, and in some specimens there is hardly any appearance of ash-colour on the back; but both male and female present every intermediate shade, and many specimens occur in which the sex can only be ascertained by dissection.

In some species of birds of prey, the sexual difference of size is so considerable, even among the nestlings before they can fly, that it

would be as well, in illustration, to represent both sexes when about a month old: this is particularly observable in the sparrow-hawk (*Sparverius Europæus*), and in the tawny wood-owl (*Strix stridula*). The attitudes of these birds require a great deal of study to enable one to stuff them well; and I cannot but recommend all who ever attempt to preserve them, to avail themselves of every possible opportunity of becoming acquainted with their positions. When alive, they often for a very long time remain fixed in one attitude; and therefore, if properly mounted, stuffed specimens of birds of prey may be made to have the exact appearance of life.

All the crow-kind should be procured in winter, their feathers being then new and uninjured, and they acquire no additional beauty in the spring. A single specimen of each sort is sufficient, as the sexes are similar*, and the young closely resemble the adults: the young rook (*Corvus frugilegus*), however, differs from the old bird in its forehead being clothed with feathers, on which account some, perhaps, may think it worth preserving. Of the jackdaw species (*Corvus monedula*), the handsomest are the old males, in a few of which the back of the neck is almost white. The jay (*Garrulus glandarius*), and the magpie (*Pica Europæa*), are two of the most showy of our native birds: the former varies little, and does not much injure its feathers; the latter is only occasionally to be met with in full beauty: to obtain a fine specimen, several should be procured, and the most beautiful selected.

The different woodpeckers† should be sought for about the commencement of winter, as early as possible after the completion of their autumnal moult, and in fine weather, when the trees are dry: at this time their plumage is very much brighter than at any other season, the tail being new and unworn, and the under parts often beautifully clean. Three specimens of each are necessary, in illustration of the male, the female, and the young in its first feathers. Of the common green species (*Chrysoptilus Europæus-major*‡), a male should be selected in

* Perhaps the hooded crow (*C. cornix*) may prove an exception. See vol. i. pp. 239 and 279.—I have just examined a female in which several black feathers were intermixed with the grey on the back.—E. B.

† I am informed that a specimen of the great black woodpecker (*Picus martius*) was shot about three years ago, somewhere in the northern vicinity of London; it was stuffed by a person who did not know its value; and not being properly preserved, was, in a few months, completely destroyed by the moths.—E. B.

‡ *Chrysoptilus viridis*, Auctorum; but as all the woodpeckers of this division are green, the term *viridis* is not exclusive, as every specific name ought to be.—E. B.

which the back is of a lively green, and the *moustaches* rich crimson, some being much handsomer than others: the back of the female should be a fine clear grey; and the young handsomely mottled, before it has begun to cast its feathers.

The wryneck (*Yunx torquilla*) should be procured early in the spring; the sooner after its arrival the better, as it is apt to become dirty. The elegant markings of this species being in some individuals much more beautifully defined than in others, several specimens should be shot, and the finest of them selected for stuffing. The sexes are equally handsome, and sufficiently dissimilar to require a specimen of each to be preserved. This bird's attitudes should be carefully studied; they are extremely peculiar, and totally unlike those of any other British species. It is a mistaken notion to suppose that the wryneck is unable to climb; it runs up trees with as much facility as a woodpecker, though it is not often seen to do so: in the pairing season, it is a curious sight to observe the male and female toying, and following each other about on a large tree; often running spirally up the bole, and occasionally exhibiting the strangest and most unaccountable attitudes. Those who have winged, or otherwise slightly wounded one of these birds, will not easily forget the singular snake-like manner in which it twirled its neck when it was handled; its crest erect, and the feathers of its long neck depressed as closely as possible. A bird of this species was brought to me last August, that had been winged in the spring, and had supported itself in the interim in the garden of one of my neighbours, its wound having healed up to all appearance, though it was quite unable to fly. For the satisfaction of seeing it climb I placed it on the trunk of a pear-tree, which it immediately ascended with ease and celerity, by repeated springs, in the manner of a woodpecker. It seemed fearless, and exceedingly pugnacious: when placed upon the ground its attitudes were most extraordinary, appearing more like an automaton figure set in motion by machinery than a living bird. The most detailed description would convey no adequate idea of its awkward appearance; sometimes it would stretch itself out at full length, its chin, throat, breast, and belly touching the ground, and suddenly spring backwards a couple of inches; then stretch itself out as before, and again spring backwards. If the hand were held to it, it made no attempt to escape, but raising itself a little on its legs, and cocking its tail to nearly a right angle with the body, it slowly twirled its neck about in the peculiar manner of the species, and with crest erect, and uttering its singular hiss, darted up suddenly, and gave a sharp peck; then twisted

its neck about as before, and again sprang up to peck. But these manœuvres must be witnessed; no description can convey any notion of their singularity, their stiffness, their absolutely unnatural appearance; as before observed, it seemed to resemble a piece of clockwork, much more than it did a living bird. The long tongue of the wryneck, as in the woodpecker, is darted forth by means of a peculiar annular muscle, and returns, not by any play of muscle, but simply by the elasticity of its tendons; no other contrivance would admit of the rapidity with which it moves, so great as to elude the sight, its insect food appearing to be drawn up into its mouth by attraction. The reader will pardon, I hope, the length of this and other similar digressions, for the interest which they possess; and the more especially as the subject matter of this paper is rather dry and tedious. A few more words on the wryneck, and I have done with it. The species is exceedingly abundant in this part of Surrey; so much so, that in the spring, when their frequently repeated call betrays their presence, two or three dozen might easily be procured in a few hours. This call, which much resembles the cry of several hawks, and may be expressed by the sound *pee-up* repeated nine or ten times in quick succession, is always answered by, and generally attracts to the spot, every wryneck within hearing; but not, as far as I have been able to ascertain, with any hostile intentions. Several may thus often be seen assembled on a few contiguous trees, calling to each other by turns for half an hour together, the voices of the females being easily distinguished, by being in a higher key than those of the males. From the beauty of their plumage they are in high request among the London collectors, who take advantage of this habit, by imitating their cry with a kind of mouth-whistle, a method by which many unfortunate birds are lured to their destruction. The wryneck is remarkably tenacious of its nest, or rather of the hole which it has itself excavated in a decaying tree; for it forms no nest, but lays its eggs on the soft saw-dust-like chips at the bottom of the hole. I have known every egg to be taken away the morning after it was laid, and yet the bird to continue laying her whole number in the same hole, and afterwards to resort to the same place to lay her second lot. Even if caught in it several times, she will not forsake it; but on being loosened, will often fly direct to the spot.

The common cuckoo is generally in fine plumage during its short stay in this country; even the female, being exempt from the ordinary duties of incubation, is almost always in a fit state for stuffing. Speci-

mens of the male and female should be preserved, and two of the young in their first plumage; the latter varying very considerably, even in the nest: individuals should be preferred illustrating the extremes of variation; a very dark and a very rufous specimen: the former, I believe, are generally, if not always, males. The old female cuckoos, also, are subject to much variation, the neck being more or less mottled, like the young. In the adult birds of this species, the irides are very rich, deep yellow; those of the young are of a remarkably dull, insipid grey. I may here remark, that the best method of obtaining artificial eyes of the exact colours required, is to purchase colourless glass eyes, which may be had at several of the London shops, and to colour them one's self from nature.

The nuthatch (*Sitta Europæa*) should be procured about the month of October, in fine dry weather, when its breast is least likely to be soiled with dirt. This bird may easily be recognised by its cheerful, sprightly note (resembling *chwite; chwite; chwi-chwi-chwite; chwite*), which it sometimes utters for several minutes together, perched on the topmost twig of a tree; or as it creeps about upon the larger branches. This is rather a pugnacious species; if two males happen to meet each other in their perambulations, a contest is almost sure to ensue, which is not unfrequently carried on upon the wing, twittering at each other as they fly. The nuthatch is a very bold, fearless bird; even if shot at, and missed, it often seems to take no notice, but continues its search for insects with the most perfect *nonchalance;* or it merely flies, perhaps to the next branch, uttering its usual cry.

The common mottled creeper (*Certhia familiaris*) is a most beautiful little bird when its plumage is clean and unwòrn; but, although very common, it is seldom to be obtained in a fit state for preserving. It should be sought for about the end of September, as soon as possible after the completion of its moult; for it very soon gets dirty, especially on the breast, and it injures its tail feathers very much. This is an exceedingly abundant species, though, from the retired nature of its habits, it is but little noticed: if listened for, its faint *tsit, tsit,* is sure to be heard in almost every clump of trees; and if watched for it will very soon be observed, as it flits from one tree to another, alighting generally on the trunk within a few inches of the ground, and creeping quietly along the outline, occasionally peeping round to take a glimpse at the spectator, and as soon as it thinks itself observed disappearing behind: it will often flutter down after it has ascended a few feet, and again alight near the ground, ascending the same tree several times in

different directions. In the spring months, its short song is usually uttered as it flits from tree to tree; commencing always a few seconds before it settles, and continuing for about a minute after it has alighted, then leaving off abruptly, like the common wren. This last bird rarely injures its plumage, and consequently is almost always in good condition for stuffing: both it and the creeper vary very much in size, the males continuing to grow for three or four years. The common wren runs up the trunk of a tree with as much facility as the creeper.

It would be useless here to say much on the plumage of rare species, such as the roller (*Coracias Europæus*), the hoopoe (*Upupa epops*), &c. which in any state of feather are desiderata in almost every collection; but I may take this opportunity to mention, that the summer before last a pair of hoopoes frequented a garden in this neighbourhood, the male of which, in beautiful plumage, was shot, but as a specimen was most irretrievably ruined by a tyro stuffer. The same summer a roller was observed on Penge Common, Kent; and in the preceding winter, a number of waxwings (*Bombycilla Europæa*) were shot in this immediate neighbourhood. Of this last bird three specimens are necessary to illustrate the species properly; and as they generally appear in small flocks, and are by no means shy, a sufficient number may mostly be obtained to select them from: an old male, an old female, and a young bird, before the singular wax-like appendages on its wings are developed.

A pair of kingfishers, male and female, should be procured in spring, for though very handsome specimens may occasionally be met with in winter, yet their plumage is at this time always slightly fringed with an edging, which rather impairs its brilliancy. A young bird should also be preserved in its nestling feathers. The attitudes of a living kingfisher require to be carefully studied; no species is more frequently preserved, and yet it is exceedingly rare to see one even tolerably stuffed. The form of the head and the expression of the countenance are precisely those of the heron; and the soft loose feathers, also, on the back of its head, being generally erected, render its physiognomy most strikingly similar to those of the various *Ardeidæ*. I kept a young kingfisher in confinement last summer for about three months, during which time it subsisted entirely on raw meat, which was given to it soaking in a little water; it never once tasted fish, but would occasionally, though not often, swallow a common earth worm. It always knocked its food several times violently against the perch of its cage, to *kill* it, before devouring it; and swallowed, without difficulty, most

amazingly large mouthfuls. It was at times extremely brisk and lively, flying about from perch to perch for half an hour together with great activity, and generally accompanying every movement with a very singular motion, which made it appear exactly as though afflicted with the hiccoughs. It rested sometimes on the whole length of the *tarsus*, but most commonly in the usual manner of most birds. Though by no means timid, it never became very familiar, although some pains were taken to make it so. I was never able to divine the cause of its death; it was taken ill during my absence from home, and the next day, when I returned, was too far gone for to entertain any hope of its recovery: when dead, it was in good plump condition; and had a few sprats been given to it at the time it was first taken ill, it would very probably not have died. As it was, I was not sorry to get rid of it, for a more *messy* bird never existed.

The length to which I have unconsciously been extending these desultory observations prevents me at present from finishing the subject; there is a vast deal to be said about the plumage of the smaller birds, which it would be useless to attempt to cram into this paper. I must, therefore, close here for the present, and reserve for a future occasion a number of other similar remarks on the numerous smaller birds which frequent the British islands.

Tooting, Surrey, Dec. 18*th*, 1833.

CHAPTER OF VARIETIES.

ANECDOTE OF A SLOW WORM.—As every little anecdote, however insignificant in itself, tends in some degree to the advancement of knowledge, I have sent the following, which, should you find it worthy, you may insert in your magazine.

My attention was lately arrested, during a ramble, by a rustling among some dry grass, which was contiguous to the path I was treading. And upon examining into the cause of the disturbance, I discovered a slow worm in the close pursuit of a large moth which it had apparently wounded, and was upon the point of capturing; but, on my appearance, it made a precipitate retreat into its hole. I should like to know something more of this beautiful little reptile; perhaps some of your contributors will furnish us with its history.

Being a constant reader of your magazine as well as of your other interesting publications on the science, I intend to make a point of occasionally sending you Ornithological and Botanical notices*.—PLINY.

Lancaster, Dec. 6th, 1833.

THE WOODCHAT.—On the 17th of May, 1833, I shot a female woodchat, Bewick, (*Lanius rufus*, Lin.); it was in company with a red-backed Shrike (*Lanius Colurius*), and appeared to have paired with it, as after I had shot the woodchat, the flusher kept flying round the place where the bird fell, and appeared evidently distressed. I tried to shoot it, but he was too cunning, keeping at a very good distance from my gun. After trying to get at him for some time, I was obliged to give up the chace. As some naturalists state that the *Lanius rufus* is a distinct species, and others that it is only a variety of the red-backed shrike, I think it right to forward this statement to your valuable magazine. Not seeing any other woodchat about, makes me think that it must have paired with the flusher. On dissecting the bird, I found her full of eggs; her gizzard was filled with beetles' wings. Red-backed shrikes abound about here, on the sides of the mountains, near the Capel Curig lakes. On the 19th instant, I shot four of them; they all proved to be male birds; their gizzards were filled with the same kind of beetles' wings as the woodchat. As you state that you will receive hints from mere beginners, I trust you will consider this as one.

Since writing this, I have killed another woodchat, in company with a red-backed shrike. Although I shot at both at the same time, I only killed the woodchat, which proved to be another female. After I had shot it, the flusher kept flying from rock to rock round the place, giving a shrill whistle. I have also shot another flusher, which was a male again. It seems odd I cannot shoot a female, unless the woodchat is it. Both the woodchats corresponded exactly with the figure in Bewick.

A. T.

Capel Curig, Caernarvonshire, May 22, 1833.

---

* The fact mentioned by our correspondent is curious: every attention will be paid to the promised notices.—EDITOR.

DRAGON FLIES.—In my remarks on the Dragon Fly, in your Number for December, I named a few of the situations where this splendid insect might be found, but omitted to observe that it may be often seen hovering over stagnant waters in company with some other insects, chiefly two-winged flies. This creature often becomes the prey of insectivorous birds, although it possesses so rapid a flight. Last August I was endeavouring to capture a very beautiful specimen, and had approached a patch of lucerne where he was basking in the sun. His numerous eyes, however, were on the alert, and he rose in the air, moving his wings briskly with a humming noise, when, at that instant, one of the many swallows which were skimming along the meadow pounced on the unfortunate dragon fly, and bore him off in triumph. I have ascertained the generic names of five species of the dragon fly, which have come under my observation, and have subjoined their haunts as I have noted them down.

ORDER HIUROPTERA—GENUS LIBELLULA.

Libellula varia	Found resting on a wall-tree in a garden at Brixton, Surrey.
L. depressa	Situations enumerated, common in Kent, Surrey, and Middlesex.
L. forcipata Cordulegaster annulatus, (Leach MSS.)	Hawthorn hedges and sunny banks, Isle of Wight and Hampshire.
L. Flaveola	On a lilac tree in a garden at Camberwell.
L. Virgo (Linnæus)	Banks of the river Stour, Suffolk, and Croydon canal.

I have not been able to identify the *L. cancellata* of Donovan; and have only met with a single specimen of *L. flaveola*. The most common of all these insects is the *L. depressa*. The female, however, differs entirely in colour from the male, being of a brownish hue. The larva of this fly has been made the subject of much observation*, and differs considerably from the perfect insect, both in habits and appearance, passing its life under water, but in an active state previous to its emerging as a winged insect. The insect, both in its aquatic and winged state, is formidable to its smaller brethren. Excuse mistakes, as I am but a tyro entomologist.

SYLVANUS.

Camberwell, December 10th, 1833.

---

* See Insect Transformations.